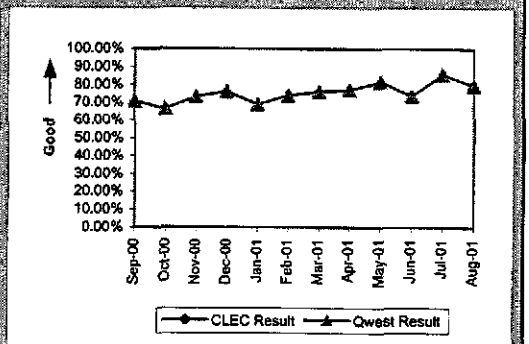
Checklist #14 - Resale - Frame Relay Installation

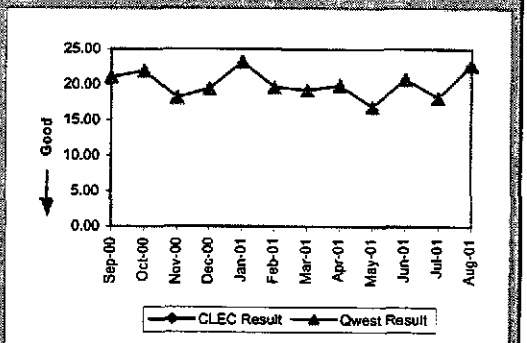
Installation Commitments Met (Percent) (OP-3)– Interval Zone Two

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					436	614	71.01%		
Oct-00					368	554	66.43%		
Nov-00					474	648	73.15%		
Dec-00					447	587	76.15%		
Jan-01					430	625	68.80%		
Feb-01					376	508	74.02%		
Mar-01					547	719	76.08%		
Apr-01					306	397	77.08%		
May-01					201	246	81.71%		
Jun-01					390	529	73.72%		
Jul-01					789	920	85.76%		
Aug-01					405	508	79.72%		



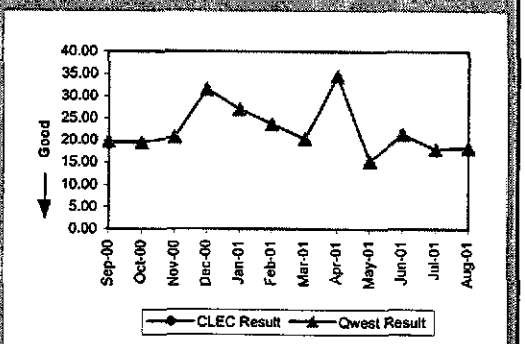
Installation Interval (Average Days) (OP-4)– Interval Zone Two

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					12926	614	21.05		
Oct-00					12139	554	21.91		
Nov-00					11763	648	18.15		
Dec-00					11398	587	19.42		
Jan-01					14497	625	23.20		
Feb-01					9984	508	19.65		
Mar-01					13843	719	19.25		
Apr-01					7901	397	19.90		
May-01					4162	246	16.92		
Jun-01					10990	529	20.78		
Jul-01					19873	1094	18.17		
Aug-01					15313	673	22.75		



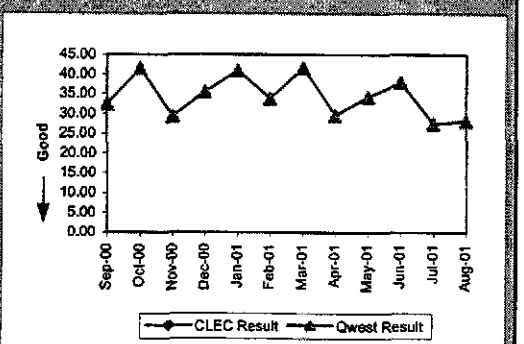
Delayed Days for Non-Facility Reasons (Average Days) (OP-6A)– Interval Zone Two

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					2280	116	19.66		
Oct-00					2219	114	19.46		
Nov-00					2089	101	20.68		
Dec-00					2551	81	31.49		
Jan-01					3590	133	26.99		
Feb-01					2157	91	23.70		
Mar-01					2464	121	20.36		
Apr-01					1791	52	34.44		
May-01					458	30	15.27		
Jun-01					2049	96	21.34		
Jul-01					4883	273	17.89		
Aug-01					4126	224	18.42		



Delayed Days for Facility Reasons (Average Days) (OP-6B)– Interval Zone Two

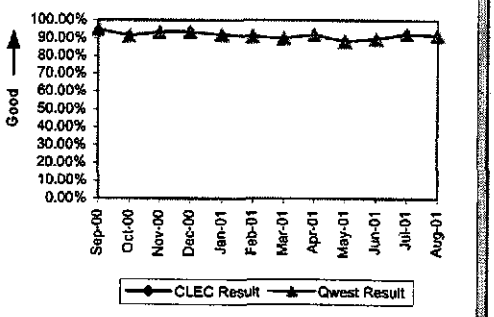
Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					2013	62	32.47		
Oct-00					2993	72	41.57		
Nov-00					2142	73	29.34		
Dec-00					2094	59	35.49		
Jan-01					2538	62	40.94		
Feb-01					1384	41	33.76		
Mar-01					2124	51	41.65		
Apr-01					1154	39	29.59		
May-01					514	15	34.27		
Jun-01					1631	43	37.93		
Jul-01					880	32	27.50		
Aug-01					1245	44	28.30		



Checklist #14 - Resale - Frame Relay Installation

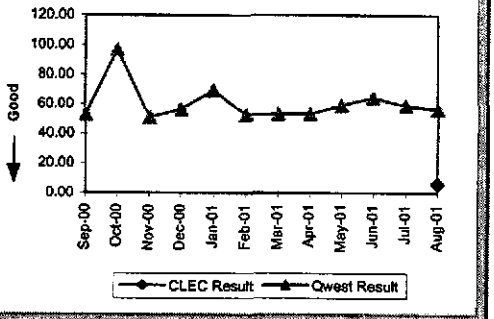
New Service Installation Quality (Percent) (OP-5)– Interval Zone One and Two

Date	CLEC Num	CLEC Dend	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					2282	2409	94.73%		
Oct-00					1853	2029	91.33%		
Nov-00					1975	2114	93.42%		
Dec-00					2002	2139	93.60%		
Jan-01					1705	1856	91.86%		
Feb-01					1585	1742	90.99%		
Mar-01					1847	2052	90.01%		
Apr-01					1765	1916	92.12%		
May-01					912	1034	88.20%		
Jun-01					1020	1138	89.63%		
Jul-01					1682	1822	92.32%		
Aug-01					1526	1668	91.49%		



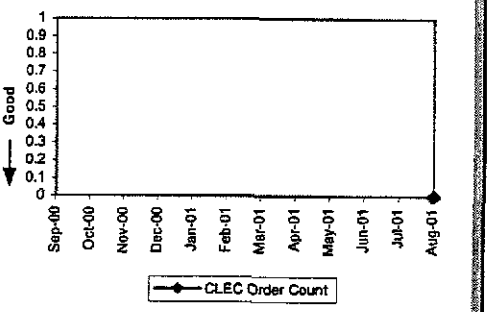
Interval for Pending Orders Delayed Past Due Date (Average Days) (OP-15A)

Date	CLEC Num	CLEC Dend	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					149535	2832	52.80		
Oct-00					109538	1133	96.68		
Nov-00					9894	193	51.26		
Dec-00					11076	196	56.51		
Jan-01					68210	986	69.18		
Feb-01					28822	547	52.69		
Mar-01					31415	588	53.43		
Apr-01					30488	571	53.39		
May-01					27262	460	59.27		
Jun-01					25567	397	64.40		
Jul-01					22976	390	58.91		
Aug-01	6	1	6.00		25317	448	56.51	-0.64	-1.39



Checklist #14 - Resale - Frame Relay Installation

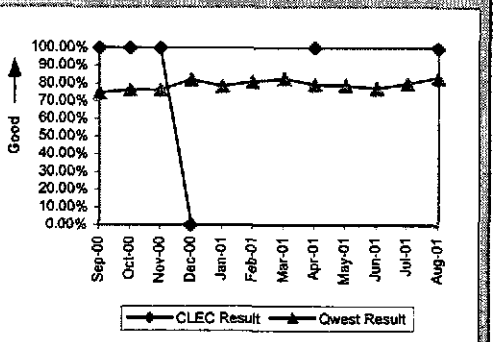
Count of Pending Orders Delayed for Facilities Reasons Frame Relay (OP-15B)	
Date	CLEC Order Count
Sep-00	
Oct-00	
Nov-00	
Dec-00	
Jan-01	
Feb-01	
Mar-01	
Apr-01	
May-01	
Jun-01	
Jul-01	
Aug-01	0



Checklist #14 - Resale - Frame Relay Repair

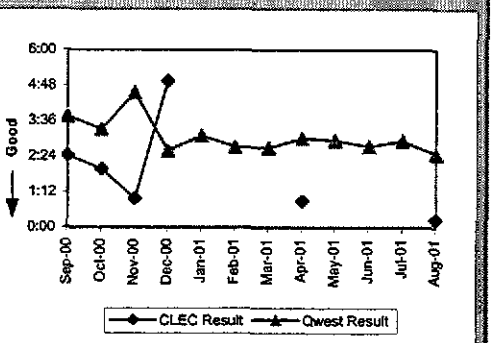
All Troubles Cleared within 4 hours (Percent) (MR-5)– Interval Zone One

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00	1	1	100.00%	0.00%	910	1217	74.77%	-0.58	-1.35
Oct-00	1	1	100.00%	0.00%	967	1266	76.38%	-0.56	-1.34
Nov-00	3	3	100.00%	0.00%	857	1124	76.25%	-0.97	-1.59
Dec-00	0	1	0.00%	0.00%	829	1009	82.16%	8.08	3.91
Jan-01					819	1044	78.45%		
Feb-01					771	952	80.99%		
Mar-01					962	1162	82.79%		
Apr-01	1	1	100.00%	0.00%	874	1100	79.45%	-0.51	-1.31
May-01					945	1198	78.88%		
Jun-01					946	1224	77.29%		
Jul-01					872	1091	79.93%		
Aug-01	4	4	100.00%	0.00%	974	1167	83.46%	-0.89	-1.54



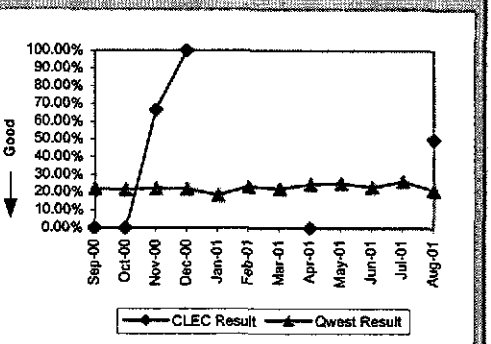
Mean Time to Restore (Hours:Minutes) (MR-6)– Interval Zone One

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00	2:27	1	2:27		4605:17	1217	3:47	-0.16	-1.1
Oct-00	1:59	1	1:59		4196:43	1266	3:19	-0.16	-1.1
Nov-00	2:58	3	0:59	1:14	5135:01	1124	4:34	-0.51	-1.31
Dec-00	4:57	1	4:57		2630:05	1009	2:36	0.48	-0.71
Jan-01					3232:17	1044	3:06		
Feb-01					2600:11	952	2:44		
Mar-01					3138:12	1162	2:42		
Apr-01	0:54	1	0:54		3323:26	1100	3:01	-0.37	-1.23
May-01					3533:54	1198	2:57		
Jun-01					3367:19	1224	2:45		
Jul-01					3201:08	1091	2:56		
Aug-01	1:05	4	0:16	0:06	2904:51	1167	2:29	-1.04	-1.63



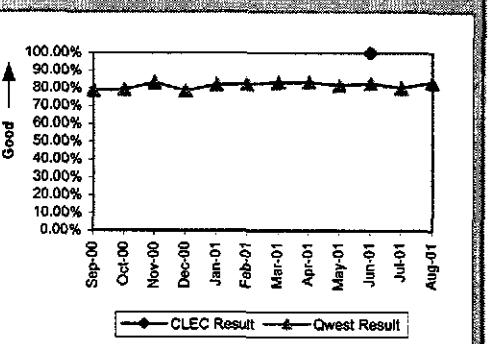
Repair Repeat Report Rate (Percent) (MR-7)– Interval Zone One

Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00	0	1	0.00%	0.00%	269	1217	22.10%	-0.53	-1.32
Oct-00	0	1	0.00%	0.00%	274	1266	21.64%	-0.53	-1.32
Nov-00	2	3	66.67%	47.14%	251	1124	22.33%	1.52	-0.08
Dec-00	1	1	100.00%	0.00%	221	1009	21.90%	1.23	-0.25
Jan-01					193	1044	18.49%		
Feb-01					223	952	23.42%		
Mar-01					257	1162	22.12%		
Apr-01	0	1	0.00%	0.00%	272	1100	24.73%	-0.57	-1.35
May-01					303	1198	25.29%		
Jun-01					281	1224	22.96%		
Jul-01					286	1091	26.21%		
Aug-01	2	4	50.00%	50.00%	249	1167	21.34%	1.2	-0.27



All Troubles Cleared within 4 hours (Percent) (MR-5)– Interval Zone Two

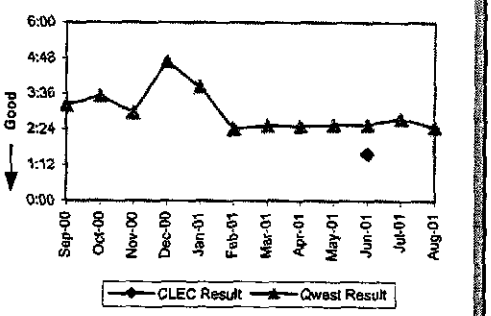
Date	CLEC Num	CLEC Denc	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					776	981	79.10%		
Oct-00					832	1051	79.16%		
Nov-00					764	919	83.13%		
Dec-00					701	893	78.50%		
Jan-01					692	843	82.09%		
Feb-01					607	737	82.36%		
Mar-01					814	978	83.23%		
Apr-01					787	943	83.46%		
May-01					815	997	81.75%		
Jun-01	1	1	100.00%	0.00%	849	1026	82.75%	-0.46	-1.28
Jul-01					823	1026	80.21%		
Aug-01					839	1009	83.15%		



Checklist #14 - Resale - Frame Relay Repair

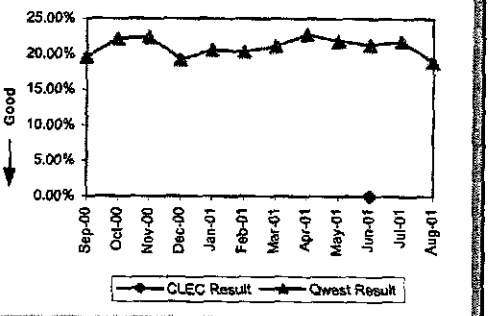
Mean Time to Restore (Hours:Minutes) (MR-6)– Interval Zone Two

Date	CLEC Num	CLEC Den	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					3153:22	981	3:13		
Oct-00					3715:01	1051	3:32		
Nov-00					2730:08	919	2:58		
Dec-00					4185:36	893	4:41		
Jan-01					3227:49	843	3:50		
Feb-01					1788:03	737	2:26		
Mar-01					2476:54	978	2:32		
Apr-01					2371:10	943	2:31		
May-01					2548:10	997	2:33		
Jun-01	1:35	1	1:35		2640:01	1026	2:34	-0.21	-1.13
Jul-01					2830:24	1026	2:46		
Aug-01					2510:21	1009	2:29		



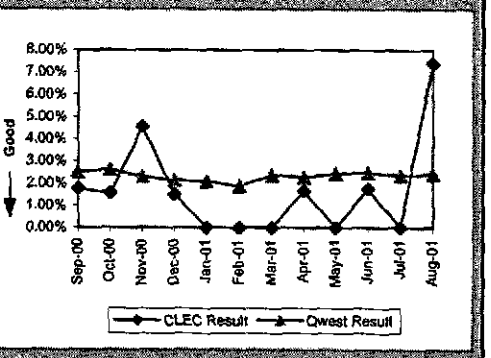
Repair Repeat Report Rate (Percent) (MR-7)– Interval Zone Two

Date	CLEC Num	CLEC Den	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00					192	981	19.57%		
Oct-00					233	1051	22.17%		
Nov-00					206	919	22.42%		
Dec-00					172	893	19.26%		
Jan-01					174	843	20.64%		
Feb-01					150	737	20.35%		
Mar-01					207	978	21.17%		
Apr-01					215	943	22.80%		
May-01					218	997	21.87%		
Jun-01	0	1	0.00%	0.00%	219	1026	21.35%	-0.52	-1.32
Jul-01					224	1026	21.83%		
Aug-01					191	1009	18.93%		



Trouble Rate (Percent) (MR-8)– Interval Zone One and Two

Date	CLEC Num	CLEC Den	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00	1	57	1.75%	13.13%	2198	87924	2.50%	-0.36	-1.22
Oct-00	1	64	1.56%	12.40%	2317	88301	2.62%	-0.53	-1.32
Nov-00	3	66	4.55%	20.83%	2043	88966	2.30%	1.22	-0.31
Dec-00	1	67	1.49%	12.13%	1902	89437	2.13%	-0.36	-1.22
Jan-01	0	68	0.00%	0.00%	1887	90040	2.10%	-1.21	-1.73
Feb-01	0	62	0.00%	0.00%	1689	90317	1.87%	-1.09	-1.66
Mar-01	0	61	0.00%	0.00%	2140	90269	2.37%	-1.22	-1.74
Apr-01	1	60	1.67%	12.80%	2043	90120	2.27%	-0.31	-1.19
May-01	0	56	0.00%	0.00%	2195	90031	2.44%	-1.18	-1.72
Jun-01	1	57	1.75%	13.13%	2250	90384	2.49%	-0.36	-1.22
Jul-01	0	56	0.00%	0.00%	2117	90330	2.34%	-1.16	-1.7
Aug-01	4	54	7.41%	26.19%	2176	90445	2.41%	2.4	0.19



Customer and Non-Qwest Related Trouble Reports (Percent) (MR-10)– Interval Zone One and Two

Date	CLEC Num	CLEC Den	CLEC Resu	Std Dev	Qwest Num	Qwest Den	Qwest Resu	Mod Z Scr	Parity Scr
Sep-00	0	1	0.00%	0.00%	540	2738	19.72%	-0.5	-1.3
Oct-00	0	1	0.00%	0.00%	555	2872	19.32%	-0.49	-1.3
Nov-00	0	3	0.00%	0.00%	519	2562	20.26%	-0.87	-1.53
Dec-00	3	4	75.00%	43.30%	536	2438	21.99%	2.11	0.28
Jan-01					460	2347	19.60%		
Feb-01					440	2129	20.67%		
Mar-01					504	2644	19.06%		
Apr-01	0	1	0.00%	0.00%	546	2589	21.09%	-0.52	-1.31
May-01					524	2719	19.27%		
Jun-01	0	1	0.00%	0.00%	554	2804	19.76%	-0.5	-1.3
Jul-01					632	2749	22.99%		
Aug-01	1	5	20.00%	40.00%	577	2753	20.96%	-0.05	-1.09

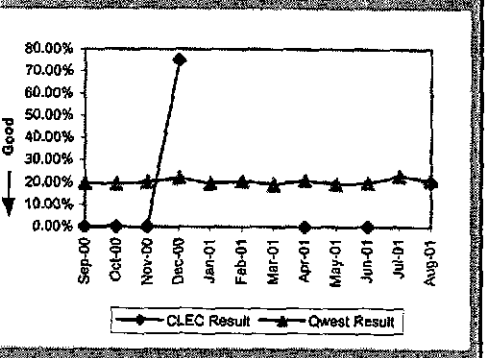


EXHIBIT 3

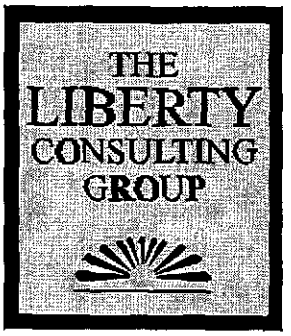
LIBERTY REPORT

Final Report on the Audit of Qwest's Performance Measures

Presented to:

The Regional Oversight Committee

By:



65 Main Street, P.O. Box 237
Quentin, Pennsylvania 17083
(717) 270-4500 (voice)
(717) 270-0555 (facsimile)
Admin@LibertyConsultingGroup.com (e-mail)

September 25, 2001

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I. Introduction

A. Objectives of the Performance Measures Audit *(PMA)*

The Regional Oversight Committee *(ROC)*, which is composed of thirteen of the fourteen states served by Qwest, retained The Liberty Consulting Group *(Liberty)* to conduct an audit of the measures used to evaluate Qwest's wholesale performance. The objectives of the audit were to:

- validate that Qwest's measurement of performance is in the manner prescribed by the Performance Indicator Definition *(PID)* and is reliable,
- compare and assess retail and wholesale operations processes in areas material to serving CLECs, and
- verify that, where required, comparable wholesale and retail processes will by nature of their design and operation provide service at parity.

The main focus of the PMA was to determine whether there were reasonable assurances that the performance as measured and reported by Qwest was equivalent to the performance that Qwest actually delivered. To accomplish this, the audit work took three principal forms:

- Examining Qwest's processes for collecting and processing data, in order to determine whether Qwest can and does appropriately capture, process, and report performance information against the standards and measures that have been defined.
- Conducting an end-to-end analysis of sample data sets to verify the complete and accurate functioning of the data capture, security, processing, analysis, and reporting processes audited.
- Performing an independent calculation of performance measures to corroborate the adequacy of the processes that measure performance against explicit standards and measures.

This report summarizes the results of the PMA.

B. Conduct of the Audit

Prior to the start of the PMA, the stakeholders in the Qwest region generally reached a consensus about how to measure the adequacy of Qwest's service to CLECs, what role comparative and absolute measures should play in those measurements, and what detailed measures would be used to evaluate Qwest's fulfillment of its obligations to make its network available to CLECs. This consensus was documented in the Performance Indicator Definitions, or PID report. The PMA did not include an examination of the propriety of the measurements required by the PID. It took them as a given, recognizing that any process for changing them was a matter for the larger group that worked to develop them. However, the audit work did include an assessment of whether all requirements of the PID were objectively stated and not subject to multiple interpretations.

The PMA began one year ago. Early audit work included the establishment of audit protocols that provided for the efficient and timely flow of information from Qwest to Liberty, the identification of the owners and experts for systems material to performance measurement, and the gaining of an understanding of the architecture and operation of the legacy and special systems involved in performance measurement and reporting. Liberty then developed a detailed audit plan that was approved by the ROC, and available in summary form to Qwest and other stakeholders.

To conduct the three parts of the audit (*i.e.*, process, data tracking, and recalculation) of each performance measure, Liberty acquired information from and conducted work sessions with Qwest's personnel. In total there were about 600 requests for information and over 175 interviews and work sessions. Liberty also acquired information from CLECs and the staffs of ROC state commissions relative to areas they were particularly concerned with or that they thought required specific attention during the audit. As Liberty completed the audit of particular performance measures, it issued a "Release Report" that summarized the audit findings for that measure. The bulk of this report is a compilation of those individual release reports.

Liberty identified problems or concerns associated with performance measures in the form of Exception Reports and Observation Reports in accordance with procedures established for the entire OSS test. Liberty issued 25 observations and 44 exceptions during the course of the PMA. Liberty reported on the resolution of these issues in the release reports for the affected performance measures.

The Master Test Plan for OSS testing identified several of the performance measures as being required to validate test results. The ROC decided that the PMA should be complete for those measures before the beginning of the OSS test. Liberty issued its release report for the last of the testing-required measures on April 7, 2001. Since that date, Liberty continued the PMA for the remaining non-test-required performance measures and for some changes made to test-required measures.

In addition to the review of individual performance measures, an element of Liberty's work scope was to develop recommendations for an ongoing monitoring program, as it concerns the accuracy, reliability, and completeness of performance reporting by Qwest. Associated with the monitoring recommendations, Liberty's audit included an assessment of Qwest's change management process as it related to performance measuring and reporting.

C. Summary Conclusions and Recommendations

Despite the fact that the ROC and its Technical Advisory Group *(TAG)* had approved an extensive definition of the required performance measures prior to beginning the audit, the results of the PMA showed that in a significant number of cases, Qwest was not meeting or could not meet those definitions exactly, or that the PID language needed to be more precise. Thus, as a result of the PMA, a significant number of changes occurred to Qwest's measurement and reporting processes and to the PID itself. In addition, when the audit started there were several measures for which Qwest either did not have a method established for collecting and reporting performance, or for which Qwest used a relatively cumbersome and error-prone manual method. Liberty has now concluded that the audited performance measures accurately and reliably report

actual Qwest performance. Therefore, the PMA resulted in significant improvements to both the processes used by Qwest and the specificity and clarity of the PID.

There is a recognized need for an on-going program for monitoring the reliability and accuracy of Qwest's performance reporting. This need is heightened because the methods for reporting some measures have only recently been developed by Qwest and because of the number of changes that Qwest made during the PMA. Liberty also found that Qwest has a reasonable process in place to track and control changes in the processes used to report performance. However, that process needs to be more formally documented and visible to stakeholders of Qwest's wholesale performance.

The following sections of this report include recommendations associated with individual performance measures. These recommendations generally fall into the following categories:

- There were cases in which Liberty became aware that Qwest intended to make changes to the process (*e.g.*, automate a process that was being done manually) or systems used to collect and process the information required to report results. In those cases, Liberty recommended that future auditing or checking of modified processes be undertaken.
- There were cases in which Liberty found that Qwest was accurately reporting results, but that there was room for improvement in the internal documentation associated with certain performance measures. In those cases, Liberty recommended that the documentation be improved.
- Some of Qwest's processes were relatively new when Liberty issued the associated release report, and some of these processes had difficulties in the development stages. In these cases, Liberty recommended some checking of results such as independent recalculations.
- The accuracy of many of the performance measures rely on the accuracy of field-entered data. Related to several of the maintenance and repair performance measures, Liberty recommended that Qwest develop an audit process to ensure the accuracy of trouble reports.

D. Organization of This Report

The following sections of this report provide the results of Liberty's audit of the various performance measures. Those sections are organized in the same order as the PID, more specifically:

II. GA – Electronic Gateway Availability

III. PO – Pre-Order/Order

IV. OP – Ordering and Provisioning

V. MR – Maintenance and Repair

VI. BI – Billing

VII. DB – Database Updates

VIII. DA – Directory Assistance, and OS – Operator Services

IX. NI and NP – Network Performance

X. CP – Collocation.

Section XI. below provides the Liberty's recommendations for an on-going monitoring program and its assessment of Qwest's change management as it relates to the performance measures.

II. GA – Electronic Gateway Availability

A. GA-1 – Gateway Availability – IMA-GUI

1. Introduction and Background

GA-1 is designed to measure the availability of the IMA-GUI gateway and two associated systems. GA-1A measures the availability of IMA-GUI itself, GA-1B measures the availability of Fetch-N-Stuff, and GA-1C measures the availability of Data Arbiter.

There is no product reporting for this measure, and it has no exclusions. The standard for all of the sub-measures is 99.25 percent up-time. Each of the sub-measures has specific scheduled up times. The formula for this measure in the PID is:

> *([Number of hours and minutes gateway is available to CLECs during reporting period]/[Number of hours and minutes of scheduled availability time during reporting period]) x 100*

The PID also defines several terms:

> *Scheduled availability time is equal to scheduled up time minus scheduled down time.*
>
> *Scheduled down time is time identified and communicated that the interface is not available due to maintenance and/or upgrade work.*
>
> *Time gateway is available to CLECs is equal to scheduled availability time minus outage time.*
>
> *An outage is a critical or serious loss of functionality attributable to the specified gateway or component affecting Qwest's ability to serve its customers.*

Problem Management Records *(PMRs)* are the source documents that record application outages. A potential outage can be identified in several different ways. A CLEC can call Qwest and report a problem with an application, in which case Qwest will open a trouble ticket and investigate the problem. Automatic system alerts can also indicate a problem. Finally, Qwest support personnel could notice that an application is down or running slowly. After Qwest investigates the incident, the PMR is filled out, noting whether the problem resulted in a customer-affecting outage, the application that experienced the outage, and the start and stop time of the outage.

A program called the Nightly Availability Rollup Calculation performs several functions on PMRs that are critical to performance measure reporting. It compares PMRs for the same application and ensures that there is no *double-counting* when they cover partially overlapping time periods. It is ensures that the outage interval used in performance reporting only includes the portion of the outage time that occurred during the scheduled up time of the application.

2. Overall Summary

There have been three observations and one exception issued regarding this measure. Qwest has satisfactorily responded to all of them and the performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the observations and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly.

Liberty also wanted a more precise definition of an outage, and several data requests addressed that issue. Liberty has arrived at several inferences regarding outages from the responses to those data requests. As stated in the PID, an outage is a critical or serious loss of functionality affecting Qwest's ability to serve its customers. Qwest does not use slow response times in determining if an outage has occurred, but it does use timeouts. If an application is inoperable or is incurring more than three timeouts per 5-minute period, then Qwest considers the application unavailable to the customer. Qwest only takes an outage if the problem is not a client problem.

During the PID workshop, reference was made to a gateway system "stoppage" in Arizona that was not considered an outage by Qwest, and Liberty investigated this issue. Qwest responded that the customer had encountered error messages because of an extremely brief backup in transaction processing. Qwest stated that the backup was so brief that the problem was repaired before it could have been identified, and thus no trouble ticket was even created.

Liberty's analysis revealed several problems with this measure (see the discussion of exceptions and observations below). After Qwest's initial process revisions to resolve those problems, Liberty requested all PMRs (regardless of whether they reported an outage) for this measure for the month of October 2000. After reviewing the PMRs, Liberty suspected that the calculated results for October (which used the new process for the first time) were incorrect, and submitted a data request asking Qwest to recheck its calculation. The response stated that Qwest had indeed calculated the October results improperly, that the results had been recalculated, and that the corrected results would appear in subsequent performance measure reports. Liberty reviewed the revised October results in the February 7, 2001, performance measure report and suspected that they were still incorrect. Liberty submitted another data request asking Qwest to recheck its reported results. That same data request also asked Qwest how it planned to ensure accurate results in the future. Qwest's response stated that they had indeed double-counted an outage and that it would be corrected. The response also provided a new reporting method. This method is more in line with the processes and systems Qwest uses for its own internal tracking, and Qwest believes it is therefore less likely to be performed incorrectly. Liberty reviewed the new method and concluded that, when implemented properly, it would provide the correct performance measure results. Liberty also concluded that Qwest's recalculation yielded correct results for October.

The application interdependencies problem described in Exception 1030 will only occur if there is an outage in the IMA database component or the IMA menuing component. There has not been an outage in either of those components since October, so October was the most recent month for which Liberty could test the correctness of Qwest's calculation process as it relates to

component interdependencies. Liberty obtained the relevant PMRs for January 2001. Liberty used those PMRs to recalculate the January 2001 results for this measure and concluded that they were correct.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty released measure GA-1 on March 16, 2001.

b. Exceptions

There was one exception regarding this performance measure. Exception 1030 found that, because of application interdependencies, Qwest was incorrectly reporting many of the gateway availability results. The main problem related to the fact that outages in the IMA menuing or IMA database components could create an outage in a gateway application just as an outage in the application itself could. Qwest responded with a proposal for a revised set of six gateway availability measures. Liberty met with Qwest to discuss the proposed measures and how results for them would be calculated. Liberty concluded that reporting them properly should resolve the problem. The ROC TAG decided that one of the measures, GA-5 - FOM, was unnecessary. The remaining five measures are the ones to be found in the latest PID. GA-1 now reports outages against the relevant components as shown in the following table:

Measure	Components
GA-1A	IMA-GUI + IMA database (po/o hrs.) + IMA Menuing (po/o hrs.)
GA-1B	Fetch-N-Stuff
GA-1C	Data Arbiter ADR + Data Arbiter CSR + Data Arbiter EQPF1 + Data Arbiter PIC + Data Arbiter TNR

c. Observations

There have been three observations regarding this performance measure. Observation 1006 found that Qwest had been using incorrect scheduled up times for most of the gateway measures. Qwest responded that it had been using a 12-month average availability time and that it would begin using the actual scheduled availability time for each period. Liberty confirmed that Qwest is now using actual scheduled availability times.

Observation 1009 found that some of the gateway availability results in the regional report differed from those in the Colorado report for the same month, even though the results should be the same. During the period of the audit, Qwest has frequently been revising historical performance measure results as it corrects problems. Qwest responded that Liberty had compared a report with revised results with a report that did not have revised results, and Liberty found this answer to be correct.

Liberty's Observation 1015 found that the documentation of the entire gateway performance measure development and reporting process was inadequate. Qwest provided new documentation, which included descriptions of how to determine whether an outage had occurred (with illustrative examples), the steps required to properly code the ticket, and how to calculate the performance measurement results. Liberty reviewed the documents and concluded that they were adequate.

In addition to Observation 1015, a data request asked for all documentation of how Qwest identifies and handles scheduled down-time. In responding to that data request, Qwest discovered that its processes had not been handling scheduled down-time properly and that previous performance measure reports had not been including it. For example, there were actually 840 minutes of scheduled down-time that should have been reported against GA-2 in December, but the February 7, 2001 performance report did not include that scheduled down time. Qwest stated that they have fixed the problem. The performance report for January (dated March 5, 2001) properly includes down-time for all gateway availability measures except GA-4 (which is not the subject of this release).

d. Conclusions

This performance measure accurately reports percent availability for the relevant applications. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

The gateway availability performance measure reporting process is newly revised and Qwest has encountered problems in implementing it. Because of this, Liberty recommends that Qwest closely monitor every step in the process and independently recalculate the results obtained. Someone other than the people originally involved in producing the results should do this recalculation. It should include reviewing the source documents for outages and scheduled down-time, recalculating the scheduled up-time, and then independently calculating the numerators and denominators for the sub-measures. Liberty recommends that this recalculation be done for at least the next four to six months.

B. GA-2 – Gateway Availability – IMA-EDI

1. Introduction and Background

GA-2 is designed to measure the availability of the IMA-EDI gateway. The scheduled up-time for this measure is 6:00 a.m. to 10:00 p.m. Monday through Friday, and 6:00 a.m. to 8:00 p.m. on Saturday. There is no product reporting for this measure, and it has no exclusions. The standard for it is 99.25 percent up-time.

The formula for this measure in the PID is:

([Number of hours and minutes gateway is available to CLECs during reporting period]/[Number of hours and minutes of scheduled availability time during reporting period]) x 100

The PID also defines several terms:

Scheduled availability time is equal to scheduled up time minus scheduled down time.

Scheduled down time is time identified and communicated that the interface is not available due to maintenance and/or upgrade work.

Time gateway is available to CLECs is equal to scheduled availability time minus outage time.

An outage is a critical or serious loss of functionality attributable to the specified gateway or component affecting Qwest's ability to serve its customers.

Problem Management Records *(PMRs)* are the source documents that record application outages. A potential outage can be identified in several different ways. A CLEC can call Qwest and report a problem with an application, in which case Qwest will open a trouble ticket and investigate the problem. Automatic system alerts can also indicate a problem. Finally, Qwest support personnel could notice that an application is down or running slowly. After Qwest investigates the incident, the PMR is filled out, noting whether the problem resulted in a customer-affecting outage, the application that experienced the outage, and the start and stop time of the outage.

A program called the Nightly Availability Rollup Calculation performs several functions on PMRs that are critical to performance measure reporting. It compares PMRs for the same application and ensures that there is no *double-counting* when they cover partially overlapping time periods. It also ensures that the outage interval used in performance reporting only includes the portion of the outage time that occurred during the scheduled up time of the application.

2. Overall Summary

There have been three observations and one exception issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the observations and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly.

Liberty also wanted a more precise definition of an outage, and several data requests addressed that issue. Liberty has arrived at several inferences regarding outages from the responses to those data requests. As stated in the PID, an outage is a critical or serious loss of functionality affecting Qwest's ability to serve its customers. Qwest does not use slow response times in determining if an outage has occurred, but it does use timeouts. If an application is inoperable or is incurring

more than 3 timeouts per 5-minute period, then Qwest considers the application unavailable to the customer. Qwest only takes an outage if the problem is not a client problem.

During the PID workshop, reference was made to a gateway system "stoppage" in Arizona that was not considered an outage by Qwest, and Liberty investigated this issue. Qwest responded that the customer had encountered error messages because of an extremely brief backup in transaction processing. Qwest stated that the backup was so brief that the problem was repaired before it could have been identified, and thus no trouble ticket was even created.

Liberty's analysis revealed several problems with this measure (see the discussion of exceptions and observations below). After Qwest's initial process revisions to resolve those problems, Liberty requested all PMRs (whether or not they reported an outage) for this measure for the month of October 2000. After reviewing the PMRs, Liberty suspected that the calculated results for October (which used the new process for the first time) were incorrect, and submitted a data request asking Qwest to recheck its calculation. The response stated that Qwest had indeed calculated the October results improperly, that the results had been recalculated, and that the corrected results would appear in subsequent performance measure reports. Liberty reviewed the revised October results in the 2/7/01 performance measure report and suspected that they were still incorrect. Liberty submitted another data request asking Qwest to recheck its reported results. That same data request also asked Qwest how it planned to ensure accurate results in the future. Qwest's response stated that they had indeed double-counted an outage and that it would be corrected. The response also provided a new reporting method. This method is more in line with the processes and systems Qwest uses for its own internal tracking, and Qwest believes it is therefore less likely to be performed incorrectly. Liberty reviewed the new method and concluded that, when implemented properly, it would provide the correct performance measure results. Liberty also concluded that Qwest's recalculation yielded correct results for October.

The application interdependencies problem described in Exception 1030 will only occur if there is an outage in the IMA database component or the IMA menuing component. There has not been an outage in either of those components since October, so October is the most recent month for which Liberty could test the correctness of Qwest's calculation process as it relates to component interdependencies. Liberty did obtain the relevant PMRs for January 2001. Liberty used those PMRs to recalculate the January 2001 results for this measure and concluded that they were correct.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure GA-2 to meet the audit-release requirements as of March 16, 2001.

b. Exceptions

There was one exception regarding this performance measure. Exception 1030 found that, because of application interdependencies, Qwest was incorrectly reporting many of the gateway availability results. The main problem related to the fact that outages in the IMA menuing or IMA database components could create an outage in a gateway application just as an outage in the application itself could. Qwest responded with a proposal for a revised set of six gateway availability measures. Liberty met with Qwest to discuss the proposed measures and how results

for them would be calculated. Liberty concluded that reporting them properly should resolve the problem. The ROC TAG decided that one of the measures, GA-5 - FOM, was unnecessary. The remaining five measures are the ones to be found in the latest PID. GA-2 now reports outages against the IMA-EDI and IMA database (during preordering/ordering hours) components.

c. Observations

There have been three observations regarding this performance measure. Observation 1006 found that Qwest had been using incorrect scheduled up times for most of the gateway measures. Qwest responded that it had been using a 12-month average availability time and that it would begin using the actual scheduled availability time for each period. Liberty confirmed that Qwest is now using actual scheduled availability times.

Observation 1009 found that some of the gateway availability results in the regional report differed from those in the Colorado report for the same month, even though the results should be the same. During the period of the audit, Qwest has frequently been revising historical performance measure results as it corrects problems. Qwest responded that Liberty had compared a report with revised results with a report that did not have revised results, and Liberty found this answer to be correct.

Liberty's Observation 1015 found that the documentation of the entire gateway performance measure development and reporting process was inadequate. Qwest provided new documentation, which included descriptions of how to determine whether an outage has occurred (with illustrative examples), the steps required to properly code the ticket, and how to calculate the performance measurement results. Liberty reviewed the documents and concluded that they were adequate.

In addition to Observation 1015, a data request asked for all documentation of how Qwest identifies and handles scheduled down time. In responding to that data request, Qwest discovered that its processes had not been handling scheduled down time properly and that previous performance measure reports had not been including it. For example, there were actually 840 minutes of scheduled down time that should have been reported against GA-2 in December, but the February 7, 2001 performance report did not include that scheduled down time. Qwest stated that they have fixed the problem. The performance report for January (dated March 5, 2001) properly includes downtime for all gateway availability measures except GA-4 (which is not the subject of this PID release).

d. Conclusions

This performance measure accurately reports percent availability for the relevant applications. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

The gateway availability performance measure reporting process is newly revised and Qwest has encountered problems in implementing it. Because of this, Liberty recommends that Qwest closely monitor every step in the process and independently recalculate the results obtained. Someone other than the people originally involved in producing the results should do this

recalculation. It should include reviewing the source documents for outages and scheduled downtime, recalculating the scheduled up time, and then independently calculating the numerators and denominators for the sub-measures. Liberty recommends that this recalculation be done for at least the next four to six months.

C. GA-3 – Gateway Availability – EB-TA

1. Introduction and Background

GA-3 is designed to measure the availability of the EB-TA interface. The scheduled up times for the interface are 24 hours-a-day, Monday through Friday, midnight to 11:00 p.m. on Saturday, and 5:00 a.m. to midnight on Sunday.

There is no product reporting for this measure, and it has no exclusions. The standard for GA-3 is 99.25 percent up-time. The formula for this measure in the PID is:

> *([Number of hours and minutes gateway is available to CLECs during reporting period]/[Number of hours and minutes of scheduled availability time during reporting period]) x 100*

The PID also defines several terms:

> *Scheduled availability time is equal to scheduled up time minus scheduled down time.*
>
> *Scheduled down time is time identified and communicated that the interface is not available due to maintenance and/or upgrade work.*
>
> *Time gateway is available to CLECs is equal to scheduled availability time minus outage time.*
>
> *An outage is a critical or serious loss of functionality attributable to the specified gateway or component affecting Qwest's ability to serve its customers.*

Problem Management Records *(PMRs)* are the source documents that record application outages. A potential outage can be identified in several different ways. A CLEC can call Qwest and report a problem with an application, in which case Qwest will open a trouble ticket and investigate the problem. Automatic system alerts can also indicate a problem. Finally, Qwest support personnel could notice that an application is down or running slowly. After Qwest investigates the incident, the PMR is filled out, noting whether the problem resulted in a customer-affecting outage, the application that experienced the outage, and the start and stop time of the outage.

A program called the Nightly Availability Rollup Calculation performs several functions on PMRs that are critical to performance measure reporting. It compares PMRs for the same application and ensures that there is no *double-counting* when they cover partially overlapping time periods. It also ensures that the outage interval used in performance reporting only includes the portion of the outage time that occurred during the scheduled up time of the application.

2. Overall Summary

There have been three observations and one exception issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the observations and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly.

Liberty also wanted a more precise definition of an outage, and several data requests addressed that issue. Liberty has arrived at several inferences regarding outages from the responses to those data requests. As stated in the PID, an outage is a critical or serious loss of functionality affecting Qwest's ability to serve its customers. Qwest does not use slow response times in determining if an outage has occurred, but it does use timeouts. If an application is inoperable or is incurring more than 3 timeouts per 5-minute period, then Qwest considers the application unavailable to the customer. Qwest only takes an outage if the problem is not a client problem.

During the PID workshop, reference was made to a gateway system "stoppage" in Arizona that was not considered an outage by Qwest, and Liberty investigated this issue. Qwest responded that the customer had encountered error messages because of an extremely brief backup in transaction processing. Qwest stated that the backup was so brief that the problem was repaired before it could have been identified, and thus no trouble ticket was even created.

Liberty's analysis revealed several problems with this measure (see the discussion of exceptions and observations below). After Qwest's initial process revisions to resolve those problems, Liberty requested all PMRs (whether or not they reported an outage) for this measure for the month of October 2000. After reviewing the PMRs, Liberty suspected that the calculated results for October (which used the new process for the first time) were incorrect, and submitted a data request asking Qwest to recheck its calculation. The response stated that Qwest had indeed calculated the October results improperly, that the results had been recalculated, and that the corrected results would appear in subsequent performance measure reports. Liberty reviewed the revised October results in the February 7, 2001, performance measure report and suspected that they were still incorrect. Liberty submitted another data request asking Qwest to recheck its reported results. That same data request also asked Qwest how it planned to ensure accurate results in the future. Qwest's response stated that they had indeed double-counted an outage and that it would be corrected. The response also provided a new reporting method. This method is more in line with the processes and systems Qwest uses for its own internal tracking, and Qwest believes it is therefore less likely to be performed incorrectly. Liberty reviewed the new method and concluded that, when implemented properly, it would provide the correct performance measure results. Liberty also concluded that Qwest's recalculation yielded correct results for October.

The application interdependencies problem described in Exception 1030 will only occur if there is an outage in the IMA database component or the IMA menuing component. These components are not relevant to the GA-3 measure. There has not been an outage in either of those components since October, so October is the most recent month for which Liberty could

test the correctness of Qwest's calculation process as it relates to component interdependencies. Liberty did obtain the relevant PMRs for January 2001. Liberty used those PMRs to recalculate the January 2001 results for this measure and concluded that they were correct.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure GA-3 to meet the audit-release requirements as of March 16, 2001.

b. Exceptions

There was one exception regarding this performance measure. Exception 1030 found that, because of application interdependencies, Qwest was incorrectly reporting many of the gateway availability results. The main problem related to the fact that outages in the IMA menuing or IMA database components could create an outage in a gateway application just as an outage in the application itself could. Qwest responded with a proposal for a revised set of six gateway availability measures. Liberty met with Qwest to discuss the proposed measures and how results for them would be calculated. Liberty concluded that reporting them properly should resolve the problem. The ROC TAG decided that one of the measures, GA-5 - FOM, was unnecessary. The remaining five measures are the ones to be found in the PID. GA-3 reports outages against the MEDIACC component.

c. Observations

There have been three observations regarding this performance measure. Observation 1006 found that Qwest had been using incorrect scheduled up times for most of the gateway measures. Qwest responded that it had been using a 12-month average availability time and that it would begin using the actual scheduled availability time for each period. Liberty confirmed that Qwest is now using actual scheduled availability times.

Observation 1009 found that some of the gateway availability results in the regional report differed from those in the Colorado report for the same month, even though the results should be the same. During the period of the audit, Qwest has frequently been revising historical performance measure results as it corrects problems. Qwest responded that Liberty had compared a report with revised results with a report that did not have revised results, and Liberty found this answer to be correct.

Liberty's Observation 1015 found that the documentation of the entire gateway performance measure development and reporting process was inadequate. Qwest provided new documentation, which included descriptions of how to determine whether an outage has occurred (with illustrative examples), the steps required to properly code the ticket, and how to calculate the performance measurement results. Liberty reviewed the documents and concluded that they were adequate.

In addition to Observation 1015, a data request asked for all documentation of how Qwest identifies and handles scheduled down time. In responding to that data request, Qwest discovered that its processes had not been handling scheduled down time properly and that previous performance measure reports had not been including it. For example, there were actually 840

minutes of scheduled down time that should have been reported against GA-2 in December, but the February 7, 2001 performance report did not include that scheduled down time. Qwest stated that they have fixed the problem. The performance report for January (dated March 5, 2001) properly includes downtime for all gateway availability measures except GA-4 (which is not the subject of this PID release).

d. Conclusions

This performance measure accurately reports percent availability for the relevant applications. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

The gateway availability performance measure reporting process is newly revised and Qwest has encountered problems in implementing it. Because of this, Liberty recommends that Qwest closely monitor every step in the process and independently recalculate the results obtained. Someone other than the people originally involved in producing the results should do this recalculation. It should include reviewing the source documents for outages and scheduled downtime, recalculating the scheduled up time, and then independently calculating the numerators and denominators for the sub-measures. Liberty recommends that this recalculation be done for at least the next four to six months.

D. GA-4– Gateway Availability – EXACT

1. Introduction and Background

GA-4 is designed to measure the availability of the EXACT electronic access service request system to CLECs. The scheduled up times are 6 a.m. to 9 p.m. Monday through Friday, and 7 a.m. to 5 p.m. on Saturday. There is no product reporting for this measure, and it has no exclusions. The standard for this measure is 99.25 percent up time. The formula for this measure in the PID is:

> *([Number of hours and minutes EXACT is available to CLECs during reporting period]/[Number of hours and minutes of scheduled availability time during reporting period]) x 100*

The PID also defines several terms:

> *Scheduled availability time is equal to scheduled up time minus scheduled down time.*
>
> *Scheduled down time is time identified and communicated that the interface is not available due to maintenance and/or upgrade work.*
>
> *Time gateway is available to CLECs is equal to scheduled availability time minus outage time.*

An outage is a critical or serious loss of functionality attributable to the specified gateway or component affecting Qwest's ability to serve its customers.

Problem Management Records *(PMRs)* are the source documents that record application outages. A potential outage can be identified in several different ways. A CLEC can call Qwest and report a problem with an application, in which case Qwest will open a trouble ticket and investigate the problem. Automatic system alerts can also indicate a problem. Finally, Qwest support personnel could notice that an application is down or running slowly. After Qwest investigates the incident, the PMR is filled out, noting whether the problem resulted in a customer-affecting outage, the application that experienced the outage, and the start and stop time of the outage.

A program called the Nightly Availability Rollup Calculation performs several functions on PMRs that are critical to performance measure reporting. It compares PMRs for the same application and ensures that there is no *double-counting* when they cover partially overlapping time periods. It also ensures that the outage interval used in performance reporting only includes the portion of the outage time that occurred during the scheduled up time of the application.

2. Overall Summary

There have been three observations and no exceptions issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the observations discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly.

Liberty also wanted a more precise definition of an outage, and several data requests addressed that issue. Liberty has arrived at several inferences regarding outages from the responses to those data requests. As stated in the PID, an outage is a critical or serious loss of functionality affecting Qwest's ability to serve its customers. Qwest does not use slow response times *per se* in determining if an outage has occurred, but it does use timeouts. If an application is inoperable or is incurring more than 3 timeouts per 5-minute period, then Qwest considers the application unavailable to the customer. Qwest only takes an outage if the problem is not a client problem.

During a PID workshop, reference was made to a gateway system "stoppage" in Arizona that was not considered an outage by Qwest, and Liberty investigated this issue. Qwest responded that the customer had encountered error messages because of an extremely brief backup in transaction processing. Qwest stated that the backup was so brief that the problem was repaired before it could have been identified, and thus no trouble ticket was even created.

Liberty's analysis revealed several problems with this measure (see the discussion of observations below). After Qwest's initial process revisions to resolve those problems, Liberty requested all PMRs (regardless of whether they reported an outage) for all of the gateway measures for the month of October 2000. After reviewing the PMRs, Liberty suspected that the calculated results for October (which used the new process for the first time) were incorrect, and submitted a data request asking Qwest to recheck its calculation. The response stated that Qwest

had indeed calculated the October results improperly, that the results had been recalculated, and that the corrected results would appear in subsequent performance measure reports. Liberty reviewed the revised October results in the 2/7/01 performance measure report and suspected that they were still incorrect. Liberty submitted another data request asking Qwest to recheck its reported results. That same data request also asked Qwest how it planned to ensure accurate results in the future. Qwest's response stated that they had indeed double-counted an outage and that it would be corrected. The response also provided a new reporting method. This method is more in line with the processes and systems Qwest uses for its own internal tracking, and Qwest believes it is therefore less likely to be performed incorrectly. Liberty reviewed the new method and concluded that, when implemented properly, it would provide the correct performance measure results. Liberty also concluded that Qwest's recalculation yielded correct results for October.

Liberty obtained the relevant PMRs for the EXACT application for the month of February 2001. There were three PMRs, one of which had resulted in an outage of 8 minutes. Liberty used those PMRs to recalculate the reported February results for GA-4 and concluded that they were correct.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure GA-4 to meet the audit-release requirements as of May 1, 2001.

b. Exceptions

There were no exceptions regarding the GA-4 gateway availability performance measure.

c. Observations

There have been three observations regarding this performance measure. Observation 1006 found that Qwest had been using incorrect scheduled up times for most of the gateway measures, including GA-4. Qwest responded that it had been using a 12-month average availability time and that it would begin using the actual scheduled availability time for each period. Liberty confirmed that Qwest is now using actual scheduled availability times.

Observation 1009 found that some of the gateway availability results in the regional report differed from those in the Colorado report for the same month, even though the results should be the same. During the period of the audit, Qwest has frequently been revising historical performance measure results as it corrects problems. Qwest responded that Liberty had compared a report with revised results with a report that did not have revised results, and Liberty found this answer to be correct.

Liberty's Observation 1015 found that the documentation of the entire gateway performance measure development and reporting process was inadequate. Qwest provided new documentation, which included descriptions of how to determine whether an outage has occurred (with illustrative examples), the steps required to properly code the ticket, and how to calculate the performance measurement results. Liberty reviewed the documents and concluded that they were adequate.

In addition to Observation 1015, a data request asked for all documentation of how Qwest identifies and handles scheduled down time. In responding to that data request, Qwest discovered that its processes had not been handling scheduled down time properly and that previous performance measure reports had not been including it. For example, there were actually 840 minutes of scheduled down time that should have been reported against GA-2 in December, but the February 7, 2001 performance report did not include that scheduled down time. To address that problem, Qwest instituted revised procedures, including a monthly meeting to check the results being reported for the Gateway Availability measures. This meeting includes a review of the IRs used to track scheduled down time. Qwest reported no IRs against the EXACT application for the month of February 2001 and, accordingly, the April 6, 2001 performance report properly includes scheduled down time for GA-4 for that month.

d. Conclusions

This performance measure accurately reports percent availability for the EXACT system. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

The gateway availability performance measure reporting process is newly revised and Qwest has encountered problems in implementing it. Because of this, Liberty recommends that Qwest closely monitor every step in the process and independently recalculate the results obtained. Someone other than the people originally involved in producing the results should do this recalculation. It should include reviewing the source documents for outages and scheduled downtime, recalculating the scheduled up time, and then independently calculating the numerators and denominators for the sub-measures. Liberty recommends that this recalculation be done for at least the next four to six months.

E. GA-6 – Gateway Availability – GUI - Repair

1. Introduction and Background

GA-6 is designed to measure the availability of the GUI Repair gateway. The scheduled up-time for the gateway is 2:15 a.m. to 11:15 p.m. Monday through Friday, 2:15 a.m. to 10:00 p.m. on Saturday, and 7:00 a.m. to 11:15 p.m. on Sunday.

There is no product reporting for this measure, and it has no exclusions. The standard for this measure is 99.25 percent up-time. The formula for this measure in the PID is:

> *([Number of hours and minutes gateway is available to CLECs during reporting period]/[Number of hours and minutes of scheduled availability time during reporting period]) x 100*

The PID also defines several terms:

Scheduled availability time is equal to scheduled up time minus scheduled down time.

Scheduled down time is time identified and communicated that the interface is not available due to maintenance and/or upgrade work.

Time gateway is available to CLECs is equal to scheduled availability time minus outage time.

An outage is a critical or serious loss of functionality attributable to the specified gateway or component affecting Qwest's ability to serve its customers.

Problem Management Records *(PMRs)* are the source documents that record application outages. A potential outage can be identified in several different ways. A CLEC can call Qwest and report a problem with an application, in which case Qwest will open a trouble ticket and investigate the problem. Automatic system alerts can also indicate a problem. Finally, Qwest support personnel could notice that an application is down or running slowly. After Qwest investigates the incident, the PMR is filled out, noting whether the problem resulted in a customer-affecting outage, the application that experienced the outage, and the start and stop time of the outage.

A program called the Nightly Availability Rollup Calculation performs several functions on PMRs that are critical to performance measure reporting. It compares PMRs for the same application and ensures that there is no *double-counting* when they cover partially overlapping time periods. It also ensures that the outage interval used in performance reporting only includes the portion of the outage time that occurred during the scheduled up time of the application.

2. Overall Summary

There have been three observations and one exception issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the observations and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly.

Liberty also wanted a more precise definition of an outage, and several data requests addressed that issue. Liberty has arrived at several inferences regarding outages from the responses to those data requests. As stated in the PID, an outage is a critical or serious loss of functionality affecting Qwest's ability to serve its customers. Qwest does not use slow response times *per se* in determining if an outage has occurred, but it does use timeouts. If an application is inoperable or is incurring more than 3 timeouts per 5-minute period, then Qwest considers the application unavailable to the customer. Qwest only takes an outage if the problem is not a client problem.

During the PID workshop, reference was made to a gateway system "stoppage" in Arizona that was not considered an outage by Qwest, and Liberty investigated this issue. Qwest responded that the customer had encountered error messages because of an extremely brief backup in

transaction processing. Qwest stated that the backup was so brief that the problem was repaired before it could have been identified, and thus no trouble ticket was even created.

Liberty's analysis revealed several problems with this measure (see the discussion of exceptions and observations below). After Qwest's initial process revisions to resolve those problems, Liberty requested all PMRs (whether or not they reported an outage) for this measure for the month of October 2000. After reviewing the PMRs, Liberty suspected that the calculated results for October (which used the new process for the first time) were incorrect, and submitted a data request asking Qwest to recheck its calculation. The response stated that Qwest had indeed calculated the October results improperly, that the results had been recalculated, and that the corrected results would appear in subsequent performance measure reports. Liberty reviewed the revised October results in the February 7, 2001, performance measure report and suspected that they were still incorrect. Liberty submitted another data request asking Qwest to recheck its reported results. That same data request also asked Qwest how it planned to ensure accurate results in the future. Qwest's response stated that they had indeed double-counted an outage and that it would be corrected. The response also provided a new reporting method. This method is more in line with the processes and systems Qwest uses for its own internal tracking, and Qwest believes it is therefore less likely to be performed incorrectly. Liberty reviewed the new method and concluded that, when implemented properly, it would provide the correct performance measure results. Liberty also concluded that Qwest's recalculation yielded correct results for October.

The application interdependencies problem described in Exception 1030 will only occur if there is an outage in the IMA database component or the IMA menuing component. There has not been an outage in either of those components since October, so October is the most recent month for which Liberty could test the correctness of Qwest's calculation process as it relates to component interdependencies. Liberty did obtain the relevant PMRs for January 2001. Liberty used those PMRs to recalculate the January 2001 results for this measure and concluded that they were correct.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure GA-6 to meet the audit-release requirements as of March 16, 2001.

b. Exceptions

There was one exception regarding this performance measure. Exception 1030 found that, because of application interdependencies, Qwest was incorrectly reporting many of the gateway availability results. The main problem related to the fact that outages in the IMA menuing or IMA database components could create an outage in a gateway application just as an outage in the application itself could. Qwest responded with a proposal for a revised set of six gateway availability measures. Liberty met with Qwest to discuss the proposed measures and how results for them would be calculated. Liberty concluded that reporting them properly should resolve the problem. The ROC TAG decided that one of the measures, GA-5 - FOM, was unnecessary. The remaining five measures are the ones to be found in the PID starting with version 2.2. GA-6 now reports outages against the IMA Repair, IMA database (during repair hours) and IMA Menuing (during repair hours) components.

c. Observations

There have been three observations regarding this performance measure. Observation 1006 found that Qwest had been using incorrect scheduled up times for most of the gateway measures. Qwest responded that it had been using a 12-month average availability time and that it would begin using the actual scheduled availability time for each period. Liberty confirmed that Qwest is now using actual scheduled availability times.

Observation 1009 found that some of the gateway availability results in the regional report differed from those in the Colorado report for the same month, even though the results should be the same. During the period of the audit, Qwest has frequently been revising historical performance measure results as it corrects problems. Qwest responded that Liberty had compared a report with revised results with a report that did not have revised results, and Liberty found this answer to be correct.

Liberty's Observation 1015 found that the documentation of the entire gateway performance measure development and reporting process was inadequate. Qwest provided new documentation, which included descriptions of how to determine whether an outage has occurred (with illustrative examples), the steps required to properly code the ticket, and how to calculate the performance measurement results. Liberty reviewed the documents and concluded that they were adequate.

In addition to Observation 1015, a data request asked for all documentation of how Qwest identifies and handles scheduled down-time. In responding to that data request, Qwest discovered that its processes had not been handling scheduled down-time properly and that previous performance measure reports had not been including it. For example, there were actually 840 minutes of scheduled down-time that should have been reported against GA-2 in December, but the February 7, 2001 performance report did not include that scheduled down-time. Qwest stated that they have fixed the problem. The performance report for January (dated March 5, 2001) properly includes down-time for all gateway availability measures except GA-4 (which is not the subject of this PID release).

d. Conclusions

This performance measure accurately reports percent availability for the relevant applications. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

The gateway availability performance measure reporting process is newly revised and Qwest has encountered problems in implementing it. Because of this, Liberty recommends that Qwest closely monitor every step in the process and independently recalculate the results obtained. Someone other than the people originally involved in producing the results should do this recalculation. It should include reviewing the source documents for outages and scheduled down-time, recalculating the scheduled up time, and then independently calculating the numerators and denominators for the sub-measures. Liberty recommends that this recalculation be done for at least the next four to six months.

III. PO – Pre-Order / Order

A. PO-1A and B – Pre-Order/Order Response Times for GUI and EDI

1. Introduction and Background

PO-1 measures response time, *i.e.,* the interval between query and response, for seven different pre-order/order transaction types performed by the CLECs. PO-1A measures response time for transactions submitted via IMA-GUI; PO-1B measures response time for those transactions that are submitted via EDI.

The measure does not report actual CLEC results, but rather simulations. Qwest developed scripts for each type of transaction (*e.g.*, appointment scheduling) with steps (*e.g.*, select "next" from a screen, choose a screen) designed to reflect the activities performed by the CLECs. Then Qwest's IMA Response Time Measurement *(IRTM)* system performs simulations, and the performance results are calculated from the simulations. Qwest runs these simulations approximately every fifteen minutes throughout the day from about 6:00 a.m. to 10:00 p.m.

Qwest runs a certain number of observations each month, and each is associated with a specific product. Each product, in turn, involves some of the seven transactions, but not necessarily all of them. Thus, the total number of observations in a month will vary among the different types of transactions.

Each transaction involves one or more screens that the simulation goes through. For example, the TN Reservation (telephone number reservation) transaction reports results in three categories: request, response, and accept. The monthly performance report shows a result (in this case, an elapsed time) in each of these categories. The report then adds up the times in the three categories and reports a total time for the transaction, called "aggregate" in the report. Except for the Loop Qualification transaction type, only the aggregate time has a standard; its components do not.

There is no product reporting for this measure. The only exclusions for PO-1A and B are for rejected requests/errors and timed-out transactions. The standards for PO-1A and B depend on the transaction type and are measured in seconds.

The formula for PO-1A and B in the PID should be read as referring to the simulations run by Qwest. It is:

> *Ó[(Query response date and time) – (Query submission date and time)]/(Number of queries submitted in the reporting period)*

2. Overall Summary

There have been two observations and two exceptions issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the two observations and two exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty also reviewed the PO-1A and -1B performance measurement results for several months, including the months of December 2000 and January 2001, to ensure that all the changes required by the exceptions and observations had been made, and that the results were consistent with the IRTM Pre-Order/Order Response Time report.

Because the performance measure results for PO-1 are obtained using simulations, Liberty investigated the extent to which Qwest mirrored actual CLEC circumstances. Each simulation involves one of the fourteen Qwest states, and Liberty requested information showing that the state was irrelevant to system response time. This is a potential issue because, depending on the state, different hosts are accessed during some transaction types. The results showed that state was not a factor.

Liberty also requested information showing that product type was irrelevant to system response time. In the case of each transaction type except Facility Check, there was minimal response time variation among the products. Liberty learned that the ROC TAG had agreed that only one product, POTS, would be used in determining Facility Check response time, so this is not an issue.

Because three transaction types (*e.g.*, Address Validation) allow the user an option as to how to proceed (*e.g.*, query by Telephone Number or by Street Address), Liberty requested information about which options were used in the simulations, and why. In each case, Qwest had reasonable explanations for the options it chose.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-1A and B to meet the audit-release requirements as of March 28, 2001.

b. Exceptions

There were two exceptions regarding this performance measure. In Exception 1001 Liberty noted that, for a given transaction, it was possible that the number of observations reported in one category (*e.g.*, request) may be greater than those reported in a subsequent category (*e.g.*, response). The problem occurred when a transaction would begin before 10:00 p.m. but end after 10:00 p.m. In that case, the part of the transaction (*e.g.*, response) that occurred after 10:00 p.m. would not be included in the report. Qwest fixed the problem by modifying the IRTM business rules to expand the reporting period to 5:50AM through 10:10PM.

In Exception 1004, Liberty found that Qwest was reporting results for Facility Availability and Customer Service Records that included all products, not just non-complex services as required

by the PID. Qwest changed its procedures so that only non-complex product observations are included for these two transaction types. Qwest also increased the number of POTS accounts in the IRTM action files to ensure the reported results would continue to be statistically valid.

c. Observations

There have been two observations regarding this performance measure. Observation 1010 stated that Qwest did not include transactions that time-out in the PO-1 measurements. The PID, as it existed at the time this observation was developed, did not specifically state that timed-out transactions were being excluded from the results. Qwest responded by offering to create a new sub-measure, PO-1C, which would capture timed-out transactions; the ROC TAG approved PO-1C.

Observation 1017 found that Qwest's process weighted the results of each simulation equally. Because Qwest's simulation results differ by time-of-day, Liberty felt that an equal weighting might not be appropriate. Liberty requested information to assess this issue and the response showed that many more CLEC transactions occur at some times of the day than at others. Qwest agreed that the results would more accurately reflect actual CLEC experience if they were not weighted equally. Qwest changed its process so that it calculates the percent of all CLEC GUI transactions that occur during each 15-minute period of the day. The same thing is done for EDI transactions. Qwest then weights its simulation results using those percentages, rather than weighting all of the simulations equally as was done in the past.

d. Conclusions

This performance measure reports results that are a reasonable simulation of the actual results experienced by CLECs. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has a few minor comments regarding reporting of results for this measure. Qwest's reported results for the Loop Qualification transaction type only include the ADSL product. For completeness, the PID document should probably make reference to this fact. This could be done in a footnote similar to the footnote for Facility Availability and Customer Service Records that states these transaction types only include non-complex products.

Footnote 4 to the ROC 271 Working PID Version 2.2 states that the benchmark for Loop Qualification only applies to response time, although request time and total time are also reported. For IMA-GUI, the March 5, 2001 Qwest performance results report shows the benchmark in the aggregate section, rather than in the response time section. Thus, either the footnote in the ROC 271 Working PID Version 2.2 or the placement of the benchmark line in the IMA section of the performance results report should be changed.

For EDI, the performance results report only shows one time for Loop Qualification, and that is an aggregated request/response time. The March 5, 2001 performance report does not show any benchmark at all for Loop Qualification for EDI. A benchmark should be shown, but it will have to apply to the total time, because that is the only time that is reported.

B. PO-1C and D – Pre-Order/Order Timeouts and Rejects for GUI and EDI

1. Introduction and Background

PO-1C and PO-1D are relatively new measures that were discussed during the January 2001 PID Workshop. PO-1C measures the percentage of queries that time out before receiving a response. A timeout transaction is defined by Qwest to be a transaction whose response time duration is 200 seconds or more. All of the queries that are included in PO-1A and PO-1B are measured in PO-1C.

PO-1D measures the average response time for a sample of rejected queries. During the PID Workshop, Qwest agreed to report rejected query response time if that reporting was done using Qwest's already-existing process. This is stated explicitly in Note 5 of the PID definition. Qwest has developed a set of observations that are designed to be rejected by the system. The three error types used are: missing required field, invalid format, and illogical data combination. Fewer types of errors are being reported for EDI than for GUI. For example, because EDI will accept a four-digit zip code, the Address Validation Invalid Format query will complete successfully in EDI (while it will be rejected in GUI). As another example, the Review CSR Missing Required Field queries will fail in the EDI translator and, as the Qwest systems currently operate, a rejection interval cannot be determined. The result is that 14 different error transactions are measured for EDI, while 21 are measured for GUI. Qwest runs its set of error observations during the same hours of the day as it runs its other IRTM simulations. The reported results are not weighted by time of day (as are the results for PO-1A and PO-1B).

These sub-measures report results according to the gateway interface used. PO-1C-1 and PO-1D-1 measure results for IMA-GUI, and PO-1C-2 and PO-1D-2 measure results for EDI.

There is no product reporting for these sub-measures. The only exclusion for PO-1C is rejected requests and errors. The only exclusion for PO-1D is timed-out transactions. The standard for PO-1C-1 and PO-1C-2 is 0.5 percent. PO-1D-1 and PO-1D-2 are diagnostic sub-measures.

The formula for PO-1C is:

> *(Number of IRTM queries measured by PO-1A and PO-1B that timeout before receiving response/Number of IRTM queries transmitted in reporting period) x 100*

The formula for PO-1D is:

> *Ó[(Rejected query response date and time) – (Query submission date and time)]/(Number of rejected query transactions simulated by IRTM)*

2. Overall Summary

There have been no observations or exceptions issued regarding these sub-measures. The performance sub-measures are ready for release.

3. Analysis

Liberty conducted an interview and issued several data requests to learn about the PO-1C and PO-1D performance measure processes. Liberty reviewed the *IRTM Functional Specifications for Wholesale Rejected Query* and the *IRTM Functional Specifications for Wholesale Timeout* documents to ensure that they were consistent with the PID.

Liberty also reviewed the PO-1C and PO-1D performance measurement results for the months of March and April 2001. Liberty assessed the PO-1C results to ensure that they were consistent with the Pre-Order Time-Out Reports for those periods and that all of the PO-1A and PO-1B queries were properly included in the PO-1C results. Liberty reviewed the PO-1D results for those two months to ensure that they were consistent with the Rejected Query Response Time Report. Liberty also checked to ensure that all seven transaction types (*e.g.*, appointment scheduling, address validation), as well as all of the relevant error types, were included in Qwest's sample for GIU and EDI.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-1C and PO-1D to meet the audit-release requirements as of June 7, 2001.

b. Exceptions

There were no exceptions regarding these performance sub-measures.

c. Observations

There were no observations regarding these performance sub-measures.

d. Conclusions

PO-1C accurately reports the percent of PO-1A and PO-1B queries that timeout before receiving a response. PO-1D accurately reports the average response time for the sample of rejected queries chosen by Qwest.

5. Recommendations

Liberty has no recommendations regarding these sub-measures.

C. PO-2 – Electronic Flow-Through

1. Introduction and Background

PO-2 measures the extent to which Qwest processes LSRs completely electronically. PO-2A measures the percentage of electronic LSRs that flow from the gateway interface to the service

order processor *(SOP)* with no human intervention. PO-2B measures the percentage of flow-through-eligible LSRs that flow from the gateway interface to the SOP with no human intervention. (The list of LSR types eligible for flow-through is contained in a matrix titled *LSRs Eligible for Flow Through.*) In each case, results are reported separately for LSRs received via GUI (PO-2A-1 and PO-2B-1) and for those received via EDI (PO-2A-2 and PO-2B-2). The unit of measure for PO-2A and PO-2B is percent.

The formula for PO-2A is:

> *[(Number of electronic LSRs that pass from the gateway interface to the SOP without human intervention)/(Total number of electronic LSRs that pass through the gateway interface)] x 100*

The formula for PO-2B is:

> *[(Number of flow-through-eligible electronic LSRs that actually pass from the gateway interface to the SOP without human intervention)/(Number of flow-through-eligible electronic LSRs received through the gateway interface)] x 100*

Both PO-2A and PO-2B are reported separately for resale, unbundled loops (with or without LNP), LNP, and UNE-P (POTS).

The exclusions applying to PO-2 are:

- Rejected LSRs, non-electronic LSRs (*e.g.*, via fax or courier)
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID
- Duplicate LSR numbers (this exclusion to be eliminated upon implementation of IMA capability to disallow duplicate LSR #s)
- Invalid start/stop dates/times.

2. Overall Summary

There have been one exception and one observation issued regarding PO-2. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-2 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

As noted above, the list of LSR types eligible for flow-through is contained in a matrix titled *LSRs Eligible for Flow Through*. A footnote to that matrix states:

> *The exceptions listed reflect Qwest's current Flow Through exceptions. It is Qwest's intent to report Flow Through performance (PO-2) based on these exceptions at a later date. Qwest is currently unable to report using this level of detailed exceptions. This will result in under-reporting Flow Through performance until additional system development can be completed.*

When an LSR is submitted via either GUI or EDI, the Business Process Layer *(BPL)* of IMA performs edits and validation checks on it to determine its disposition. On the basis of those checks, BPL sets an IAER indicator that identifies whether the LSR is eligible to flow through. An IAER indicator of "M" (manual) keeps the LSR from flowing through to the Flow-Through System *(FTS)*, which is the system that creates service orders from the LSR.

For each period, two files are used by Wholesale Regulatory Reporting to calculate the PO-2 results. The FTS file consists of all LSRs that were sent to FTS. The Undetermined File contains those LSRs that should have flowed through to FTS (and thus been included in the FTS file) but that did not flow through because IMA had a communications problem with Qwest back end systems. Liberty reviewed the requirements and the pseudo code for the Undetermined File and concluded that they were appropriate. Taken together, the records in these two files are the LSRs that are considered flow-through-eligible for the period.

Liberty wanted to ensure that all flow-through-eligible LSRs could be found in either the FTS file or the Undetermined File so that they would be included in the PO-2 results calculations. Liberty requested that Qwest prepare a report showing the condition of every LSR that had an IAER indicator of "M" in the month of December. Liberty then reviewed the conditions included on this Ad Hoc IAER report. Some of the conditions (*e.g.*, CFA Validation) resulted in an LSR being included in the Undetermined File (so that it would be included in flow-through-eligible calculations). The other conditions (*e.g.*, Supplementals) were valid reasons for an LSR to not be flow-through-eligible. Accordingly, Liberty concluded that all flow-through-eligible LSRs are being included in the PO-2B calculation. (The opposite inclusion statement is known to be untrue. Not every LSR currently being treated as flow-through-eligible actually is. That is acknowledged in the footnote to Qwest's matrix quoted above, which states Qwest cannot currently make all required exclusions. Qwest is continually making refinements to its processes to exclude more LSR types that are not flow-through-eligible.)

During an interview with Qwest's personnel, Liberty inquired as to whether there could be a timing problem if an LSR is received so late in one month that it does not get into the FTS or undetermined file for that month. Liberty was informed that such situations did occur, although rarely, and that in those cases an LSR could be double-counted in PO-2A. Qwest investigated the problem and reported that it revised its programming to correct for it.

Liberty selected numerous, different types of LSRs for the month of December 2000 and checked how the program that calculates PO-2 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty recalculated the performance measure results for PO-2 for Idaho for the months of January and February 2001. Liberty obtained the same results as those reported by Qwest for PO-2 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-2 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 found that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-2A. (Supplemental LSRs are not flow-through-eligible, and thus this exception does not apply to PO-2B.) After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (*e.g.*, pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, *e.g.*, its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date and time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-2 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-2 results. Qwest revised the PID description to include these exclusion types, and they are now listed in the PID. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-2 accurately reports the percentage of electronic LSRs that flow through to the SOPs without human intervention. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

There continue to be exclusions, from the matrix of flow-through-eligible LSRs, which Qwest currently cannot make for PO-2B. As Qwest develops the capability to make additional exclusions, Liberty recommends that the new or modified processes be audited for completeness and accuracy.

D. PO-3 – LSR Rejection Notice Interval

1. Introduction and Background

PO-3 measures the interval between Qwest's receipt of an LSR and its transmittal of a rejection notice. It is reported separately for LSRs received via GUI (PO-3A), EDI (PO-3B), and facsimile (PO-3C). Only LSRs rejected in the reporting period are included.

The ROC TAG approved a change to PO-3 to take auto-rejected LSRs into account. PO-3A-1 and PO-3B-1 measure performance for LSRs that were rejected manually, and these measures are reported at the statewide level. PO-3A-2 and PO-3B-2 measure performance for LSRs that were auto-rejected, and these measures are reported at the region-wide level only. PO-3C was unchanged. PO-3A-2 and PO-3B-2 are measured in minutes and seconds, while all other PO-3 sub-measures are measured in hours and minutes. For LSRs received electronically the standard is to be determined. For LSRs received via facsimile the standard is less than or equal to 24 work week clock hours.

The formula for PO-3 is:

> *Ó [(Date and time of rejection notice transmittal) – (Date and time of LSR receipt)]/(Total number of LSR rejection notifications)*

The following types of LSRs are excluded:

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID0
- Duplicate LSRs (to eventually be eliminated)
- Invalid start or stop dates/times.

2. Overall Summary

There have been two exceptions and one observation issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-3 results are prepared using an automated

process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous different types of LSRs for the month of December 2000 and checked how the program that calculates PO-3 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty recalculated the performance measure results for PO-3 for Idaho for the months of January and February 2001. During recalculation, Liberty identified a discrepancy of 140 seconds in the PO-3C numerator. This was due to a problem in transferring the SAS interval data (in an HH:MM:SS format) into the corresponding Excel format. This difference has been accounted for in the following records:

LSR No.	SAS Interval	Excel Interval	Difference
10235588	1855:14:47	1855:14:00	47
10923791	340:52:04	340:52:00	4
10923669	358:50:48	358:50:00	48
11047107	165:35:06	165:35:00	6
11127616	272:20:35	272:20:00	35

The sum of the differences amounts to 140 seconds. Accordingly, Liberty obtained the same results as those reported by Qwest for PO-3 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-3 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 found that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-3. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (*e.g.*, pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, *e.g.*, its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date/time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest

modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

Qwest informed Liberty that not all rejected LSRs were being included in the calculation of PO-3 performance measure results. When a CLEC submits an LSR, it can be automatically rejected by the system with no manual intervention. In that case, the rejected LSR is never entered into the CRM system. As a result, such LSRs had not been included in either the numerator or denominator of PO-3 (whose results have historically been based solely on CRM data). The only rejected LSRs that were included in the measure have been those that are manually rejected. This problem only involved PO-3A and B. PO-3C measures rejection of LSRs that were submitted by facsimile, and all rejections of those LSRs are done manually. Liberty's Exception 1043 addressed this problem.

A log is kept of the LSRs that are automatically rejected by the system, and Qwest solved the problem by using that log to include auto-rejected LSRs in the measure. However, the log is only available at the regional level, and not by state. The ROC TAG approved changes to the PO-3 PID that addressed this issue. Liberty reviewed the log of auto-rejected LSRs, the file created from it and transmitted to Wholesale Regulatory Reporting *(WRR)* for input into the performance measure calculation, and the changes to the SAS code made by WRR to include the auto-rejected LSRs. Liberty found no problems with any of these documents.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-3 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-3 results. Qwest revised the PID description to include these exclusion types. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-3 accurately reports the LSR rejection notice interval. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no specific recommendations regarding this measure.

E. PO-4 – LSRs Rejected

1. Introduction and Background

PO-4 measures the extent to which LSRs are rejected as a percentage of all LSRs that are rejected or that receive Firm Order Confirmations *(FOCs)* during the reporting period. It is reported separately for LSRs received via IMA-GUI (PO-4A), EDI (PO-4B), and facsimile (PO-4C). This is a diagnostic measure.

The ROC TAG approved a change to PO-4 to take auto-rejected LSRs into account. That change also provided additional disaggregation of PO-4 performance results. PO-4A-1 and PO-4B-1 measure results for LSRs rejected manually, while PO-4A-2 and PO-4B-2 measure results for LSRs that are auto rejected. PO-4A and PO-4B are now reported on a region-wide level, and PO-4C is reported at a statewide level.

The formula for all sub-measures of PO-4 is:

> *[(Total number of LSRs rejected via the specified method in the reporting period)/(Total of all LSRs that are received via the specified interface that were rejected or FOC'd during the reporting period)] x 100*

The following types of LSRs are excluded:

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID
- Duplicate LSRs (to eventually be eliminated)
- Invalid start/stop dates/times.

2. Overall Summary

There have been three exceptions and one observation issued regarding PO-4. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-4 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous, different types of LSRs for the month of December 2000 and checked how the program that calculates PO-4 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed

below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty also recalculated the performance measure results for PO-4 for the month of March 2001. Liberty obtained the same results as those reported by Qwest for PO-4 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-4 to meet the audit-release requirements as of May 29, 2001.

b. Exceptions

During an interview with Qwest personnel, Liberty learned that Qwest was including in the denominator of PO-4 only those LSRs that were rejected during the month or that received Firm Order Confirmations (FOCs) during the month. The description section of the then-current PID document stated, in part:

> *Includes all LSRs that are submitted through the specified interface during the reporting period.*

Accordingly, Liberty issued Exception 1023, which noted that Qwest was not including all LSRs required by the PID. Qwest proposed, and the ROC TAG accepted, changes to the PID definition so that the revised PID states:

> *Includes all LSRs submitted through the specified interface that are rejected or FOC'd during the reporting period.*

This change made the PID document consistent with Qwest's process.

Exception 1039 reported that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-4. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (*e.g.*, pending flow) that applied to the original LSR. This had several implications for RRS processing. First, RRS' performance measurement program did not always correctly account for the supplemental LSR because it may no longer have had an appropriate earliest condition/status, *e.g.*, its earliest condition/status in CRM (for example, pending flow) may have been appended from the LSR being supplemented. Second, even if the LSR was accounted for in the performance measurement calculations, the way the LSR was treated may have been inappropriate because the date/time used in those calculations may have been taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

Subsequently, Qwest informed Liberty that not all rejected LSRs were being included in the calculation of PO-4 performance measure results. When a CLEC submits an LSR, it can be automatically rejected by the system with no manual intervention. In that case, the rejected LSR

is never entered into the CRM system. As a result, such LSRs had not been included in either the numerator or denominator of PO-4 (whose results have historically been based solely on CRM data). The only rejected LSRs that were included in the measure were those that were manually rejected. This problem only involved PO-4A and B. PO-4C measures rejection of LSRs that were submitted by facsimile, and all rejections of those LSRs are done manually. Liberty's Exception 1043 addressed this problem.

A log is kept of the LSRs that are automatically rejected by the system, and Qwest solved the problem by using that log to include auto-rejected LSRs in the measure. However, the log is only available at the regional level, and not by state. The ROC TAG approved changes to the PO-4 PID that addressed this issue by creating sub-measures for both PO-4A and PO-4B. PO-4A-1 and PO-4B-1 report results for manually rejected LSRs, and PO-4A-2 and PO-4B-2 report results for auto rejected LSRs. Liberty reviewed the log of auto-rejected LSRs, the file created from it and transmitted to WRR for input into the performance measure calculation, and the changes to the SAS code made by WRR to include the auto-rejected LSRs. Liberty found no problems with any of these documents.

When applied to the new sub-measures, Qwest's interpretation of the PO-4 formula (as it was defined at the time) resulted in PO-4A-2 and PO-4B-2 always having a value of 100 percent. The ROC TAG then approved additional changes to the PO-4 PID definition that resulted in the current formula, which is shown in Section A above, and which does not always yield a value of 100 percent for the PO-4A-2 and PO-4B-2 sub-measures. Liberty reviewed Qwest's changes to the Setflags program and the Rules program to ensure that they were properly compiling PO-4 results according to the new formula and definitions. Liberty found that the revisions were appropriate. (The main SAS program used to obtain PO-4 results did not require any changes to accommodate this revision to PO-4.)

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-4 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate most of the PO-4 results. Qwest revised the PID description to include these exclusion types, and they are now listed in the PID. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-4 accurately reports the percentage of LSRs that are rejected. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

F. PO-5 – Firm Order Confirmations On Time

1. Introduction and Background

PO-5 measures the percentage of Firm Order Confirmations *(FOCs)* that are provided within specified intervals by Qwest in response to LSRs/ASRs submitted by CLECs. PO-5 is reported separately for fully electronic LSRs (PO-5A) and for electronic/manual LSRs (PO-5B). Within each of those categories, reporting is separate for LSRs received via GUI and for those received via EDI. PO-5 is also reported for LSRs received via facsimile (PO-5C) and for ASRs requesting LIS trunks (PO-5D). Qwest's performance in responding to LSRs is reported separately for resale services and UNE-P (POTS), unbundled loops (all types), and LNP. All of the standards for the PO-5 sub-measures are time intervals. The time interval standards vary depending on the ordering interface, product, and number of lines.

The formula for PO-5A for fully electronic LSRs is:

> *[Count of LSRs for which the original FOC notification date/time – LSR received date/time is within 20 minutes]/(Total number of original FOC notifications transmitted for the service category in the reporting period)*

The formula for PO-5B, C, and D is:

> *[Count of LSRs/ASRs for which the original FOC notification date/time – Application date/time is within the intervals specified for the service category involved]/Total number of original FOC notifications transmitted for the service category in the reporting period)*

The following exclusions are made:

- LSRs/ASRs involving ICB (individual case basis) handling, on the basis of quantities of lines as specified in the standards section, or service/request types deemed to be projects.
- Hours on weekends and holidays (except for fully electronic LSRs, which only excludes hours outside the scheduled up time).
- LSRs with CLEC-requested FOC arrangements different from standard.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement per the PID.
- Duplicate LSRs (to eventually be eliminated).
- Invalid start/stop dates/times.

Additionally, ASRs with invalid application or confirmation dates are excluded.

2. Overall Summary

There have been one exception and one observation issued regarding PO-5. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-5 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

The definition section of the PID defines application date and time. It notes that the LSR or ASR must be complete and accurate, and that the application date/time for ASRs received after 3:00 p.m. MT is considered the start of the next business day. The file used by Wholesale Regulatory Reporting in preparing PO-5D results has an application date, but no time. Liberty requested information to confirm that the application dates in the file were already "rolled over" to the next business day when required by the PID. Liberty reviewed the methods and procedures employed by the Wholesale Service Centers regarding application date and time and confirmed that they correctly interpret the requirements of the PID.

PO-5D is measured in business days. Qwest employs a B-day program that is its interpretation of how to measure the interval, in business days, between two events (referred to in this discussion as a beginning event and an ending event). If the beginning event (or, respectively, the ending event) occurs on a weekend or holiday, then the day of the beginning event (or, respectively, the day of the ending event) is included in the interval calculation, whether that day is a business day. Days that occur between the beginning event and the ending event are included in the interval only if they are business days.

Liberty selected numerous different types of LSRs for the month of December 2000 and checked how the program that calculates PO-5 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

In addition, Liberty selected different types of ASRs and checked how the program that calculates PO-5D results had handled them. All of the ASRs had been treated properly.

Liberty also recalculated the performance measure results for PO-5 for Idaho for the months of January and February 2001. Liberty obtained the same results as those reported by Qwest for PO-5 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-5 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 reported that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-5. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (*e.g.*, pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, *e.g.*, its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date and time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program treated the supplemental LSRs correctly.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-5 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-5 results. Qwest revised the PID description to include these exclusion types. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-5 accurately reports the percentage of FOCs that are provided within specified intervals. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

G. PO-6 – Work Completion Notification Timeliness

1. Introduction and Background

PO-6 reports on the timeliness with which Qwest provides electronic notification at an LSR-level to CLECs that provisioning on all service orders associated with the LSR is complete in the service order processor. The measure reports an interval, calculated from the time the last service

order comprising the LSR is posted as complete in the service order processor to the time a completion notice is made available (for IMA-GUI) or transmitted (for EDI) to the CLEC. PO-6 provides an average value for this interval, and is measured in hours and minutes.

PO-6 includes all orders completed in the service order processor that generate completion notifications in the reporting period. PO-6A reports on notices made available via IMA-GUI, where "made available" means that Qwest has stored a status update in the IMA Status Updates database. PO-6B reports on notices transmitted via EDI, where "transmitted" currently means that Qwest has completed processing in IMA immediately prior to transmitting the notice. Qwest is developing the capability to capture the actual transmission date and time from EDI. When that capability is developed, Qwest will use that as the transmission time. The standard for PO-6 is to be determined.

The formula for PO-6A is:

> *Ó((Date and time completion notification made available to CLEC) – (Date and time the last of the service orders that comprise the CLEC LSR is completed in the service order processor))/(Number of completion notifications made available in reporting period)*

The formula for PO-6B is:

> *Ó((Date and time completion notification transmitted to CLEC) – (Date and time the last of the service orders that comprise the CLEC LSR is completed in the service order processor))/(Number of completion notifications transmitted in reporting period)*

PO-6 has the following exclusions:

- Records with invalid completion dates
- LSRs submitted manually (*e.g.*, via facsimile)
- Services that are not billed through CRIS
- ASRs submitted via EXACT.

2. Overall Summary

As discussed below, there have been three exceptions and one observation issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-6 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous types of LSRs (and their associated service orders) for the month of July 2001 and checked how the program that calculates PO-6A and PO-6B results had handled them. All of the LSRs and service orders had been treated properly.

Liberty also recalculated the performance measure results for PO-6A and PO-6B for the state of Idaho for the month of June 2001. Liberty obtained the same results as those reported by Qwest for PO-6A and PO-6B for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-6 to meet the audit-release requirements as of September 25, 2001.

b. Exceptions

Exception 1024 found that Qwest was including in the numerator of the interim PO-6 measure (*i.e.*, the measure that was in effect prior to implementation of the permanent PO-6A and PO-6B measures) all those orders for which the work completion notification was transmitted within 24 hours of when the work was posted as completed. According to the ROC 271 Working PID in effect at the time (Version 2.0), the numerator should have included all orders for which notifications were transmitted by noon of the next business day. Qwest agreed to revise its programming to conform with the PID requirements.

Exception 1027 found that Qwest was including in the denominator of the interim PO-6 measure only those orders that received a work completion notification during the period. According to the then-existing ROC 271 Working PID (Version 2.0), the denominator should have included all orders completed during the period. Because Qwest expected to implement the permanent measures, PO-6A and PO-6B, in the near future, it did not want to spend the effort required to revise the programming for the interim PO-6 measure. Qwest therefore proposed a revision to the PID to bring its processes into compliance.

During an interview with Qwest personnel, Liberty learned that Qwest began the process of calculating the interim PO-6 results by extracting data from PANS. The extracted files contained service order data that was drawn from the "Reseller" application. A particular service order could appear more than once in the files being used; therefore, Qwest performed a step to prevent inclusion of a service order more than once when calculating performance. It did this through the use of a field that it called "TEL NO." For each entry encountered in the "TEL NO" field, the program only used one record that had that particular entry. However, it was possible that two different service orders with identical entries in the "TEL NO" field could be completed in the same month. In these cases, the interim PO-6 calculation program allowed for the inclusion of only one of these service orders, even though both might have been valid. This was the finding of Exception 1033. Qwest responded that it was working to resolve this problem.

However, the permanent PO-6A and PO-6B measures, which employ quite different processes, were then implemented, and this rendered the problem irrelevant.

c. Observations

During an interview with Qwest personnel, Liberty learned that Qwest was including in the denominator of PO-6A and PO-6B all orders, and only those orders, that received a completion notification during the reporting period. The ROC 271 Working PID in effect at the time (Version 2.2) stated that the denominator of PO-6A and PO-6B should consist of those orders that were posted as complete during the period. Thus, Observation 1020 found that the set of orders being reported on was different from that required by the then-prevailing PID. Liberty also noted in the observation that statements in that PID document implied (but did not explicitly state) that work completion notifications are issued separately for each service order, although they actually are issued at the LSR level. Qwest proposed, and the ROC TAG accepted, changes to the PID that brought Qwest's processes into compliance with it.

d. Conclusions

PO-6 accurately reports the timeliness with which Qwest issues electronic work completion notifications at an LSR-level. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

H. PO-7 – Billing Completion Notification Timeliness

1. Introduction and Background

PO-7 reports on the timeliness with which Qwest transmits electronic billing completion notifications to CLECs. It measures the percentage of service orders for which such notification is made available within five business days. PO-7 includes all orders posted in CRIS and for which a billing completion notice was made available in the reporting period.

PO-7A reports on notices made available via IMA-GUI, where a notice is considered to have been "made available" when Qwest stores it in the IMA Status Updates Database. PO-7B reports on notices made available via EDI, where a notice is considered to have been "made available" when Qwest completes processing for the completion notice in IMA immediately prior to transmission of the EDI notification. The PID notes that when Qwest develops the ability to capture the actual transmission date and time from EDI, that time will be used in calculating the interval, and the PID language will be revised accordingly. The standard for both PO-7A and PO-7B is parity with PO-7C, which measures Qwest's retail performance.

The formula for both PO-7A and PO-7B is:

(Number of electronic billing completion notices in the reporting period made available within five business days of posting complete in the SOP)/(Total number of electronic billing completion notices made available during the reporting period)

The formula for PO-7C is:

(Total number of retail service orders posted in the CRIS billing system in the reporting period that were posted within 5 business days)/(Total number of retail service orders posted in the CRIS billing system in the reporting period)

The exclusions applying to all PO-7 sub measures are:

- Services that are not billed through CRIS
- Records with invalid completion dates.

Additional exclusions applying only to PO-7A and PO-7B are:

- LSRs submitted manually
- ASRs submitted via EXACT.

2. Overall Summary

As discussed below, there has been one observation issued regarding this measure. Qwest has satisfactorily responded to it. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-7 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results. Liberty's fact-finding resulted in the observation discussed below.

Liberty selected numerous different types of service orders for the month of July 2001 and checked how the program that calculates PO-7 results had handled them. All of the service orders had been treated properly.

Liberty also recalculated the performance measure results for PO-7 for the state of Idaho for the month of July 2001. Liberty obtained the same results as those reported by Qwest for PO-7 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-7 to meet the audit-release requirements as of September 25, 2001.

b. Exceptions

There were no exceptions regarding this measure.

c. Observations

Observation 1021 resulted when Liberty was told during an interview that billing completion notifications are provided to CLECs at the LSR level, not at the service order level. For example, if a CLEC submits an LSR that results in the creation of two service orders, Liberty was told that the CLEC would not receive a billing completion notification until both of those service orders have been posted complete in the Qwest SOP.

Given this situation, the wording in the then-governing ROC 271 Working PID (Version 2.2) appeared to be somewhat misleading, in that it implied (but did not state explicitly) that billing completion notifications were provided at the service order level. The description section of that version of the PID stated:

- *Intervals used in this measurement are from the time an order is completed in the SOP to the time billing completion for the order is notified to the CLEC.*
- *The start time is when the completion of the order is posted in the Qwest SOP. The end time is when, confirming that the order has been posted in the CRIS billing system, the electronic billing completion notice is transmitted to the CLEC via the same ordering interface (IMA-GUI or IMA-EDI) as used to submit the LSR.*

Liberty believed that these descriptions were likely to leave the impression that separate billing completion notices were transmitted for each service order. Qwest resolved the problem by proposing clarifying changes to the PID language. Subsequently, Liberty learned that electronic billing completion notifications actually are provided at the service order level, not the LSR level, rendering this observation, and the proposed PID changes, irrelevant.

d. Conclusions

PO-7 accurately reports the timeliness with which Qwest issues electronic billing completion notifications at a service order level.

5. Recommendations

Liberty has no recommendations regarding this measure.

I. PO-8 and PO-9 – Jeopardy Notice Interval and Timely Jeopardy Notices

1. Introduction and Background

PO-8 measures an average of how far in advance of the original due date Qwest provides jeopardy notifications to CLECs. Results are reported in four product categories: PO-8A is non-designed services, PO-8B is unbundled loops and number portability, PO-8C is LIS trunks, and PO-8D is UNE-P (POTS). The standard for PO-8A, B, and D is parity with Qwest retail, and the standard for PO-8C is parity with Feature Group D *(FGD)* services.

The unit of measure as defined in the PID is average business days. The formula for this measure is:

> *[Ó (date of the original due date of orders completed in the reporting period that received jeopardy notification – date of the first jeopardy notification) / total orders completed in the reporting period that received jeopardy notification]*

The only exclusion applying to all PO-8 sub-measures is jeopardies done after the original due date is past. Additional exclusions applying to all but PO-8C are:

- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

PO-9 measures the percent of missed due date orders for which Qwest has sent jeopardy notifications in advance of the original due date. Results are to be reported in four product categories: PO-9A is non-designed services, PO-9B is unbundled loops and number portability, PO-9C is LIS trunks, and PO-9D is UNE-P (POTS). The standard for PO-9A, B, and D is parity with Qwest retail, and the standard for PO-9C is parity with FGD services.

The formula for this measure is:

> *(total missed due date orders completed in the reporting period that received jeopardy notification in advance of original due date) / (total number of missed due date orders completed in the reporting period) x 100*

The only exclusion applying to all PO-9 sub-measures is orders missed for customer reasons. Additional exclusions applying to all but PO-9C are:

- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The data source used to calculate the results for both PO-8 and PO-9 is the Jeopardy data set. This data set consists of all service orders in the RSOR data set for the period that either received a jeopardy notice, had missed due dates, or both.

2. Overall Summary

There have been one observation and six exceptions issued regarding PO-8. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

Also as discussed below, there have been no observations and five exceptions issued regarding PO-9. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-8C and PO-9C currently are manual processes, and several of Liberty's interviews involved walkthroughs and assessments of those processes. Liberty also reviewed, and recommended changes to, Qwest's documented procedures for calculating these manual results. Qwest revised its manual procedures appropriately.

PO-8A, B, and D and PO-9A, B, and D are automated processes, and Liberty developed spreadsheets to analyze and recalculate the results reported by those processes. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observations and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty recalculated the performance measure results for PO-8C and PO-9C for the months of December 2000 and January 2001. Liberty also recalculated the performance measure results for PO-8A, B and D and PO-9A, B and D for New Mexico for the months of January 2001 and February 2001. Using Qwest's definition of average business days, Liberty obtained the same results as those reported by Qwest for PO-8 and PO-9 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measures PO-8 and PO-9 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

PO-8

Exception 1002 found that only orders for which the due date was missed were being included in the CLEC performance measure results for PO-8C. Qwest revised its procedures to include all orders completed in the reporting period that received jeopardy notices, regardless of whether the due date was missed.

Exceptions 1022 and 1025 noted that Qwest was only including in its calculations orders that were completed in the reporting period, and that Qwest was excluding from the measure all orders that received jeopardy notices *on* the due date. Qwest requested, and the ROC TAG approved, a PID change so that PO-8 is now defined to only include orders completed in the reporting period. Qwest modified its processes so that it now includes service orders that received jeopardy notices on the due date. Such service orders contribute one (1) to the denominator and zero (0) to the numerator.

Exception 1037 found that Qwest was including jeopardy notices issued on the due date of the order in both the denominator of PO-8C and in its numerator (contributing a value of one to the numerator). Such orders should only have been included in the denominator. At the same time, Liberty noted that Qwest was improperly calculating all of the intervals for the numerator of PO-8C. As an example, if the jeopardy notice for a particular record was issued on 11/13/00 and the due date was 11/14/00, then this record should have contributed one (1) to the numerator. Qwest's process contributed two (2) to the numerator, *i.e.*, Qwest's calculation of each individual interval was too large by one (1). Qwest revised its processes to correct these problems.

Exception 1040 noted that the *numerator* of the FGD comparative for PO-8C state results was being calculated by dividing the sum of the intervals by the number of records involved. The numerator should have been just the sum of the intervals. Qwest revised its procedures to correct this mistake.

Exception 1041 found that the intervals being calculated for the numerator of the formula for PO-8A, B, and D did not exclude weekends and holidays. Thus, the interval was being calculated on the basis of calendar days rather than business days as required by the PID. Qwest revised its process to calculate intervals using its B-day program (which is also used to calculate intervals measured in business days for other measures). The B-day program is Qwest's interpretation of how to measure the interval, in business days, between two events (referred to in this discussion as a beginning event and an ending event). If the beginning event (or, respectively, the ending event) occurs on a weekend or holiday, then the day of the beginning event (or, respectively, the day of the ending event) is included in the interval calculation, whether that day is a business day. Days that occur between the beginning event and the ending event are included in the interval only if they are business days. For example, if a service order's due date was Wednesday, and a jeopardy notice was sent out on the immediately previous Saturday, the PO-8 business day interval calculated by Qwest's B-day program would be 3 days, just as if the jeopardy notice had been sent out one day earlier, on Friday. Qwest employs the same logic in calculating business day intervals for PO-8C, which is done manually.

PO-9

Exceptions 1022 and 1026 found that Qwest was only including in its calculations of PO-9C orders that were completed in the reporting period. Qwest requested, and the ROC TAG approved, a PID change so that PO-9 is now defined to only include orders completed in the reporting period.

During an interview with Qwest personnel, Liberty learned that Qwest was only including an order in the denominator of the formula for PO-9C if the customer received a jeopardy notification regarding the order. However, the ROC 271 Working PID Version 2.2 stated that the denominator should include all missed due date orders completed in the reporting period, regardless of whether they have received a jeopardy notice. Accordingly, Liberty issued Exception 1038 to document this problem. Qwest's response to this exception was:

> *Qwest apologizes for any misunderstanding during the 1/24/01 interview. Liberty's understanding of the denominator used for PO-9C, Timely Jeopardy Notices on LIS Trunks is inaccurate. The denominator is the total number of missed due date orders completed in the reporting period in the Lotus Notes Escalation database. The source data includes orders with and without a jeopardy notice.*

Exception 1040 noted that the PO-9C denominator for CLEC December results was calculated improperly because of a manual mistake. Qwest fixed the mistake in future performance reports.

As discussed above, the source data for the PO-9A, B, and D calculations is the Jeopardy data set. This data set consists of all service orders in the monthly RSOR data file that had a missed due date *or* received a jeopardy notice. Exception 1042 found that Qwest's calculation process did not exclude from the denominator of the measure those service orders that received jeopardy notices but that did not have missed due dates. Thus, whenever such service orders were otherwise eligible, they were being included in the denominator of PO-9A, B, and D although that was not consistent with the PID. Qwest revised its program code to correct this mistake.

c. Observations

Observation 1011 found that service orders were not being included in the calculation of PO-8C (*i.e.*, they were not included in either the denominator or the numerator of the formula) if the date of the jeopardy notification was the same as the due date of the order. Qwest changed its process to include such service orders properly.

d. Conclusions

PO-8 accurately reports average jeopardy notice interval results (accepting the interpretation of *business day intervals* used by Qwest). Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

PO-9 accurately measures the percent of missed due date orders for which Qwest has sent jeopardy notifications in advance of the original due date. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Currently, PO-8C and PO-9C involve manual steps, and are therefore subject to human error. During the course of the audit, Liberty noted several mistakes in results calculations due to this human error. Liberty understands that Qwest is mechanizing the processes used to develop these sub-measure results, and this should reduce the possibility of human error. Liberty recommends that the automated processes be audited once they are implemented.

J. PO-10 – LSR Accountability

1. Introduction and Background

Measure PO-10 is designed to help evaluate the degree to which Qwest can account for LSRs received electronically. It measures the number of LSRs received via IMA-GUI and IMA-EDI interfaces that Qwest has accounted for in various status categories as a percentage of all LSRs received in the reporting period. The specific status categories are listed in the PID. The measure is reported monthly on a region-wide basis and with no product-level reporting. PO-10 is a diagnostic measure that Qwest has indicated it may request be withdrawn after a showing that Qwest adequately accounts for LSRs.

As LSR status information is stored in the Customer Records Management *(CRM)* system, the Key Business Indicator *(KBI)* database is also updated. Each month, personnel at the Interconnect Provisioning Center interrogate the KBI database and create a report of LSRs and their current status. This report does not include LSRs with two of the specific status codes, namely "error" and "project." The KBI is queried separately to provide totals for these two categories as supplementary data.

The Interconnect Provisioning Center sends the monthly report and the supplementary data to Qwest's Wholesale Regulatory Reporting *(WRR)* group for inclusion in the monthly performance results. The KBI reports includes data on the total number of records in the database and the number with each of the various status codes. WRR calculates the result by dividing the number of records in all status categories by the number of records in the KBI database.

2. Overall Summary

PO-10 is being measured correctly.

One Exception Report (E1028) was submitted on this measure. The problem identified in the exception has been corrected.

3. Analysis

The number of records in the database and in each status category is provided electronically by the database system. There are no physical items of data to track through the data capture process. Data tracking was therefore not applicable to this measure.

Liberty has confirmed that WRR is reporting the correct result for the measure P0-10 by examining the KBI report and supplementary data for July and August, and recalculating the performance result.

The reported result of 100.01 percent for July 2000 and 100.02 percent for August 2000 have been confirmed using the following data from the KBI reports and supplementary data:

	July 2000	August 2000
Total with 'Req Recd' status	28	4
Total with 'Pending' status	83	143
Total with 'Suppl' status	81	173
Total with 'Reject' status	4,546	6,580
Total with 'Cancel' status	3,067	3,052
Total with 'Issued' status	49,826	63,486
Total with 'Error' status	174	189
Total with 'Project' status	57	58
Total in Database (denominator)	57,858	73,667
Total in All Status Categories (numerator)	57,862	73,685
Percentage Accounted For	100.01%	100.02%

Exception 1028 reported that Qwest was not applying the PID formula correctly. Qwest corrected this matter.

As part of the audit of PO-10, Liberty interviewed a CRM subject matter expert and representatives from WRR to confirm that the measurement was being performed correctly. Qwest described the LSR auto-logging process and provided copies of the KBI report that is sent to WRR. WRR identified the values used in the KBI report to calculate the results and described the processing steps that it completes. To verify the calculation process, Liberty validated that the Qwest performance result corresponded to the values in the KBI report and supplementary data by following the WRR prescribed process.

4. Findings and Conclusions

a. Actual PID Release Date

Measure PO-10 can be considered as ready for release on February 21, 2001.

b. Exceptions

One exception was raised against PO-10 (E1028). This report highlighted a calculation error, which has been corrected. Qwest prepared a tool to be used in the training of the method of

calculation so as to prevent the error. Liberty reviewed Qwest's document.

c. Observations

There were no observations written against PO-10.

d. Conclusions

PO-10 accurately measures the degree to which Qwest accounts for LSRs received electronically.

5. Recommendations

Liberty has no recommendations associated with PO-10.

K. PO-15 – Number of Due Date Changes per Order

1. Introduction and Background

PO-15 is designed to measure the average number of due date changes made per service order for Qwest reasons. The measure includes all inward service orders (Change, New, and Transfer order types) that have been assigned a due date in the reporting period. Change orders are included if they have "T" or "T" action codes indicating inward activity. PO-15 is a diagnostic measure.

The formula for PO-15 is:

Ó(Count of Qwest due date changes on all orders)/(Total orders in reporting period)

PO-15 has the following exclusions:

- Customer requested due date changes
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

PO-15 is reported at a statewide level, and there is no product reporting for it.

A note in the PID states that limitations in Qwest's measurement capabilities allow some change orders to be included in the measure even though they do not represent additional lines. The note states that Qwest is working to exclude these types of orders.

2. Overall Summary

As discussed below, there have been two observations issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted numerous interviews and issued many data requests to learn about the performance measure development process. PO-15 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the two observations discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous different types of service orders for the month of June 2001 and checked how the program that calculates PO-15 results had handled them. As part of this activity, Liberty included some service orders that would generate the problems identified in the two PO-15 observations. Liberty found that all of the service orders were treated properly.

Liberty also recalculated the performance measure results for PO-15 for the month of July 2001 for the state of Montana. Liberty obtained the same results as those reported by Qwest for PO-15 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-15 to meet the audit-release requirements as of September 17, 2001.

b. Exceptions

There were no exceptions associated with this measure.

c. Observations

During interviews with Qwest personnel, Liberty learned that the Qwest systems do not allow completion of an order if the subsequent due date is prior to the completion date. In such cases, the systems "force" a match by creating a subsequent due date that is the same as the completion date. Recognizing this, Qwest's initial process for measuring PO-15 results excluded a change from the calculation if the subsequent due date and the completion date were the same. However, there are several reasons why such a situation could occur. One is due to the "forced match" made by the Qwest systems, and in this case it is appropriate to exclude the apparent due date change, because there really wasn't one. Another reason occurs when Qwest does change the due date on an order (and the change was required for Qwest reasons), and Qwest then completes the order on that subsequent due date. In this case, and assuming no exclusions apply, the change should be counted in PO-15. Because Qwest cannot distinguish between these two situations,

this legitimate change would be excluded as well, and that is the finding of Observation 1024.

Qwest resolved the situation by changing its measurement process to include all (non-excluded) due date changes where the subsequent due date equals the completion date. As a result, it is also including some due date changes that did not really occur. Liberty verified that the process change was made properly by reviewing the revised SAS code, tracking through the process service orders that created the situation described above, and recalculating Qwest's results.

The PO-15 calculation process includes a step to determine the number of due date changes that should be included in the numerator of the measure for each service order. For each record that is a supplement to the service order, the original PO-15 measurement process compared the original due date on the service order (referred to as the SODD) to the subsequent date in the supplement record (referred to as the SFSD). If the SODD and the SFSD were the same, then that supplement was not considered to have caused a due date change.

Because of this step in the process, some legitimate due date changes were not being counted or included in the numerator of PO-15, and that is the finding of Observation 1025. An example is the best way to explain how this problem occurred. If a service order is created with an original due date (SODD) of 6/5/01, it could be supplemented with a new due date (the first SFSD) of 6/8/01 because, say, Qwest facilities are not available. If Qwest facilities then become available earlier than expected, Qwest could again supplement the service order and change the due date back to 6/5/01 (the second SFSD). The first supplement (the first SFSD) would have been counted as a due date change (assuming all other requirements are satisfied) because it differed from the SODD. However, the second supplement (the second SFSD) would not be counted as a due date change because the second SFSD would equal the SODD. Thus, in this example, the original PO-15 calculation process would only have counted one due date change when it should actually have counted two changes.

This is not a hypothetical problem. During an interview with Qwest personnel, Liberty asked Qwest to look for an actual service order with supplements like those in the above example. Qwest found one and verified that the program being used at the time had calculated the number of due date changes incorrectly, i.e., it had failed to include the due date change where the SFSD reverted back to equal the SODD.

Qwest resolved the problem by changing its measurement process to compare the first SFSD to the SODD (as had already been the case), but to compare each subsequent SFSD to the immediately previous SFSD. Liberty verified that the change was made properly by reviewing the revised SAS code, tracking through the process service orders that created the situation described above, and recalculating Qwest's results.

d. Conclusions

PO-15 accurately reports the number of due date changes per service order made for Qwest reasons. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

IV. OP – Ordering and Provisioning

A. OP-2 – Calls Answered within Twenty Seconds – Interconnect Provisioning Center

1. Introduction and Background

The purpose of performance measure OP-2 is to assist in the evaluation of the timeliness of CLEC access to Qwest's interconnection provisioning center and retail customer access to Qwest's business offices. This measures reports on the extent to which customer calls are answered within 20 seconds. It includes all calls to the Provisioning Center (or retail offices), including calls that are abandoned before answer by a Qwest representative. A Voice Response Unit *(VRU)* first responds to a caller, typically providing a menu of options. Time spent by the caller in the VRU does not count against answer time. On the wholesale side, Qwest reports OP-2 only on a region-wide basis. State reports include the regional wholesale results and state-specific retail results. The standard for wholesale performance is parity with retail. It is the only measure associated with CLEC calls to the Provisioning Center.

Qwest contracts with AEGIS to operate the Interconnect Provisioning Center, which is located in Sierra Vista, Arizona. AEGIS uses a Rockwell Spectrum Automatic Call Distributor *(ACD)*, which is new equipment that uses recently updated software. This equipment produces reports on performance, including the percentage of calls answered within 20 seconds. AEGIS provides the information that permits Qwest to report OP-2 results.

For the retail comparison, Qwest uses the total calls to its four consumer call centers, its consumer Spanish-language center, and its small business call center. Qwest has been collecting this kind of information on the retail side of its business for a considerable length of time, and has been making reports to state commissions as part of retail performance reports. Qwest prepares a spreadsheet with data from these call centers, and uses it to report to state commissions, and now to report OP-2 performance.

2. Overall Summary

OP-2 can be released for OSS testing. There are no outstanding exceptions or observations related to this measure.

3. Analysis

OP-2 is simple and straightforward. ACDs make the call-time measurements and produce reports on performance. Except for totaling calls among the retails call centers, Qwest need do little to produce the results for this measure. Manual activities that have the potential for introducing errors are limited to data entry into spreadsheets. Liberty's audit activities included interviews with Qwest and AEGIS personnel who are responsible for reporting performance related to OP-2, review of responses to data requests concerning the process for measuring and reporting OP-2, review and analysis of the information obtained directly from the wholesale ACD, and review and analysis of the spreadsheet that compiles data from the various retail call centers.

AEGIS personnel told Liberty that Qwest people frequent the Interconnect Provisioning Center to observe and monitor operations. Qwest and AEGIS conduct monthly and quarterly monitoring and performance reviews. Regular AEGIS reports to QWEST provide performance and productivity data. Liberty reviewed these reports.

Performance data showed that abandoned calls were being counted as missed calls (*i.e.*, not answered within 20 seconds) on both the wholesale and retail side.

Liberty reviewed a description of the ACD system and its software as they relate to the accuracy of the ACD's timing and calculation. Liberty checked the spreadsheet formulas for adding and calculating the percentage of calls answered within 20 seconds on Qwest's retail side. Liberty also verified that data were accurately transferred from spreadsheets to the Qwest wholesale performance report.

During the course of this audit, Liberty found problems with the reported performance results for OP-2. Through a series of data requests and one exception report (E1020), Qwest and Liberty determined that errors were being made in the process of getting data from AEGIS to Qwest's regulatory reporting group. Qwest changed this process in order to minimize the opportunity for error. Qwest now receives a report generated directly from the switch at the Interconnect Provisioning Center. These changes were made effective starting with the September 2000 results.

Due to the way that historical data are stored, it was not practical for Qwest to go back and correct the results prior to those of September 2000. Qwest has now reported results for two months (September and October), and eliminated prior months' results. Liberty has reviewed Qwest's calculations and recalculated results on the wholesale side for September and October 2000. Earlier in the audit, Liberty checked the calculations for the retail comparable.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-2 was considered as ready-for-release as of January 11,2001.

b. Exceptions

There was one exception (E1020) related to OP-2. As discussed above, Qwest acknowledged the problems identified in that exception and has made changes to prevent its recurrence. Liberty closed Exception 1020 on December 11, 2000.

c. Observations

There were no observations related to OP-2.

d. Conclusions

OP-2 provides an accurate measure related to the timeliness of CLEC access to the Interconnect Provisioning Center. The timeliness of Qwest's response to CLEC calls to the Interconnect Provisioning Center is accurately compared to the timeliness of Qwest's retail customer access to call centers.

5. Recommendations

Liberty has no recommendation related to performance measure OP-2. Unless Qwest changes the method or process for timing the length of time to answer calls, there should be no need for future auditing. Normal monitoring of trends and levels of service should be sufficient to identify any potential problems that may arise in the future.

B. OP-3 – Installation Commitments Met, OP-4 – Installation Interval, OP-6 – Delayed Days

1. Introduction and Background

Performance measures OP-3, OP-4, and OP-6 are intended to help evaluate the timeliness of Qwest's service installations. These measures are reported together because of the similarity among the three of the data and processes used to report performance results. Timely installation of services by Qwest is important to local competition so that customers of CLECs can rely on promises to have services installed.

OP-3 provides a measure of the extent to which Qwest installs services for customers by the scheduled due date. The measure counts all orders for new or additional lines that have been assigned a due date and that were completed during the reporting period. Certain records, such as disconnect and record order types and dates missed due to customer-caused reasons are excluded from the measure. Qwest calculates the measure by dividing the total number of service orders completed on or before the due date by the total number of service orders completed during the reporting period. OP-3 has five sub-measures, and there is various product reporting within each sub-measure. For the month of November 2000, for example, Qwest's regional performance results report showed 70 separate, product-level measures under OP-3. Qwest is reporting all products except those referred to as advanced services such as line sharing and sub-loop unbundling, extended loops (EELs), and dark fiber. The standards for OP-3 are parity with retail, where such parity exists, or 90 percent, for products such as the unbundled analog loop where no parity product exists.

OP-4 provides a measure of the average length of time to install a service. Qwest calculates the measure by dividing the sum of the installation intervals in business-days by the total number of orders completed in the reporting period. The standards for OP-4 are parity with retail, where such parity exists, or 6 days, for products where no parity product exists. Otherwise, the description of OP-3 above applies to OP-4 as well.

OP-6 provides a measure of tardiness of late orders. Qwest calculates the measure by dividing the sum of the installation intervals beyond the original due date by the total number of late orders completed during the reporting period. OP-6 has an additional sub-division compared to measures OP-3 and OP-4. OP-6A measures orders that were late for non-facility reasons, and OP-6B measures orders that were late for facility reasons. For the month of November 2000, for example, Qwest's regional performance results report showed 133 separate, product-level measures under OP-6. For those products that Qwest is currently reporting results, the standard is parity with retail. For products that did not have a parity comparable for use in OP-3 and OP-4,

Qwest uses a substitute. As examples, for the unbundled analog loop, the retail comparable is residential and business POTS with dispatch and for ADSL-qualified loops, the retail comparable is Megabit with dispatch. Otherwise, the description of OP-3 above applies to OP-6 as well.

2. Overall Summary

OP-3, OP-4, and OP-6 can be released for OSS testing. There were no outstanding exceptions or observations related these measures as of the date of release.

3. Analysis

RSOR Process Overview

Service orders from Qwest's Eastern, Central, and Western regions are fed into RSOR. Qwest's regulatory reporting system then pulls service order data from RSOR into PANS databases. RSOR data are updated daily in these databases. To begin the process for reporting these provisioning measures, a program called *rsorext.sas* extracts data from PANS for the current month and the past sevens months. This is done to ensure that all records with a reference date in the current month are captured. Qwest reported that a test had been conducted to ensure that it need not go back further to capture relevant records. The test showed that over 99.9 percent of the records were captured using this method. The actual records pulled are those completed orders that are of the change, new, or transfer types.

The program *rsor.sas* actually generates the performance measures. It does this by using reference tables for things like CLEC and product identification, using auxiliary programs for things such as determination of business days, and matching data with TIRKS (trunk inventory) to designated designed services. The process generates a "detail" file that contains all the required information. *Rsor.sas* then performs data validations to determine which records should be included in the measurements. It flags records with, for example, missing or incomplete data elements according to various defined categories. The program includes these flags and various derived fields in an "ad hoc" file, which is then used to perform various comparison and calculations such as comparing commitment and completion dates, and calculating average installation intervals. Importantly, the same program operates on both wholesale and retail data.

Liberty's review of the RSOR process involved walk-throughs of the operation of these programs, detailed review of the actual program files, and independent replication of many of the programming steps through spreadsheet logical and conditional programming.

Common Exclusions

Liberty's analysis of OP-3, OP-4, and OP-6 included substantial review and evaluation of the processes used to create these performance measures, recalculation of selected result, and tracking data through from service order to reported results. In addition, Liberty examined the systems and controls used by Qwest to obtain accurate results, and analyzed the program code that is used to extract, classify, and process data. The evaluation included many interviews, requests for information, and analysis of raw service order data.

Early in the audit, Liberty realized that Qwest was excluding certain records beyond those identified in the PID from the totals used to determine results. Liberty initially documented this finding as Observation 1005. Excluded records consisted of two basic types. The first type involved limiting the database of records to those associated with the measure. For example, service orders involving internal official company services were appropriately excluded. The second type involved records in which either though errors, such as typographical mistakes, or the use of special dates to, for example, indicate order cancellation, the data could not be used in the measure. This matter was resolved through three efforts.

First, Qwest proposed, and the TAG approved, changes to the PID that more explicitly defined records that are excluded from the measure. For OP-3, OP-4, and OP-6, the additions to the PID were:

- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The second effort to resolve this issue required Qwest to generate and Liberty to review data that showed the number of records excluded of the various types. Liberty wanted to make sure that excluded records of the type that were errors were not significant in number and that they would not have a significant effect on the result.

Qwest provided and Liberty reviewed data on common exclusions for the months of October and November 2000. Liberty found that after eliminating records for OP-3, OP-4, and OP-6 that did not apply for those measures, the number of records with invalid entries and mistakes were very small. For example, the RSOR exclusions for November are summarized in the following table and explained below.

	Wholesale		Retail	
	Number	Percent	Number	Percent
Total Number of Records	55,487		1,573,684	
Records Not Excluded	44,458	80.12%	1,042,451	66.24%
Records Not Inward Activity	8,825	15.90%	509,516	32.38%
Internal Office Orders	0	0.00%	1,718	0.11%
Total Valid Records/Percent Not Excluded	46,662	95.28%	1,062,450	98.12%
Records with Invalid Dates and other entries	2,204	3.97%	19,999	1.27%
D_Except 15 Original	660	1.19%	5,230	0.33%

D_Except 15 New	90	0.16%	1,125	0.07%
Invalid Completion Date	1,199	2.16%	4,824	0.31%

There were 55,487 records extracted from RSOR/PANS for consideration of November's wholesale results. Of these, 44,458 were actually used in the measurements. Records (8,825) that did not reflect inward activity were flagged and appropriately not used. Of the total number of records that applied to these measures (46,662), over 95 percent were counted. Records with invalid dates or other data problems such as invalid product codes totaled less than 4 percent of the total wholesale records. The largest individual category of these problem records were those with invalid completion dates, which accounted for just over 2 percent of the total wholesale records.

One of the exclusion types (D_Except 15) flags records that have an illogical interval between the application date and the entry date. Qwest had been flagging such records and not using them in the measurements if that interval was more than seven days or less than negative one day. During the course of the audit, Qwest agreed to change this interval to more than 31 days or less than negative 1 day, so that fewer records would be inappropriately excluded. As shown in the table above, this change did in fact reduce the excluded records, from 660 to 90 for November wholesale.

The third way that Liberty ensured that excluded records were not a problem was to review both the program code and the actual excluded records to (a) verify that all records for both wholesale and retail measurements were treated the same, and (b) check that the data available in the excluded records did not show a pattern that would have affected the results. Both of these checks proved satisfactory.

Product Disaggregation

Another problem discovered during the audit was that certain valid records were not included in the monthly performance results (Observation 1008). This had been caused by Qwest's method to sort orders and the fact that some orders had apparently conflicting designations relative to that method. Qwest reports the results for these performance measurements according to how they were categorized in the PID for each product type (*i.e.*, with either MSA-type or Zone-type disaggregation). MSA-type reporting is used for products that were considered to be non-designed (*i.e.*, requiring no engineering), and Zone-type reporting is used for products that were considered to be designed (*i.e.*, requiring some engineering). However, some products legitimately had both orders that are non-designed and orders that are designed and thus contribute data both for MSA-type reporting and for Zone-type reporting. For such products, orders that followed the provisioning process not specified in the PID were not reported. For these few products, this meant that some non-trivial volumes of orders were excluded from the measurements.

To resolve this problem, Qwest proposed and the TAG approved PID changes, and Qwest's methods were changed as follows:

1. Products listed in the PID for MSA-type reporting:
   a. Eliminate RSOR exclusion Type 10 (a non-designed product in a designed category).
   b. Report products with incidental order volumes in the other category (*i.e.*, those mis-classified as designed products) in the MSA category (the most prominent category).
   c. Revise the PID for any products listed for MSA-type disaggregation that legitimately involve orders with and without TIRKS circuit numbers to require MSA-type disaggregation for those without TIRKS entries and Zone-type disaggregation for those with circuit numbers in TIRKS. The product affected by this step was PBX.
2. Products listed in the PID for Zone-type reporting:
   a. Eliminate RSOR exclusion Type 9 (a designed product in a non-designed category).
   b. Report products with incidental order volumes in the other category (*i.e.*, those mis-classified as being non-designed products) in the Zone 1 category (the most prominent category).
   c. Revise the PID for any products listed for Zone-type disaggregation that legitimately involve orders with and without TIRKS circuit numbers to require Zone-type disaggregation for those with TIRKS circuit numbers and MSA-type disaggregation for those without TIRKS entries. The products affected by this step were DS0, ISDN-BRI, ISDN-PRI, and Unbundled Loops-Analog.
3. Products listed in the PID for both MSA-type and Zone-type reporting:
   a. Continue to report MegaBit under both disaggregation types.
   b. As explained in the first two categories, revise the PID to require that PBX, DS0, ISDN-BRI, and ISDN-PRI be reported under Zone-type and MSA-type disaggregations according to whether the order is in TIRKS.

Qwest's response to Liberty's Observation 1008 also provided an assessment of the results of the changes and answered several questions aimed at assuring that the changed reporting methods were valid. Liberty found Qwest's explanations and analyses to be valid.

UNE-P Orders Involving Dispatch

Liberty discovered that Qwest had not been reporting results for UNE-P orders that involved dispatch (Observation 1013). This affected measures OP-3A, OP-3B, OP-4A, OP-4B, OP-6A1, and OP-6A2. Qwest confirmed that the logic originally identified as the means to distinguish UNE-P from conversions was not always working correctly. As a result, there were only a few UNE-P orders showing up in the reported results. Qwest added new fields that would specify dispatch activity on UNE-P orders. These fields enabled Qwest to distinguish and report separately on dispatch activity for all new UNE-P orders.

Recalculation and Data Tracking

Because of the large number of service records involved in these measures, Liberty's recalculation of performance results was limited to wholesale records for selected months and states. Liberty judged this to be an acceptable audit method after ensuring that Qwest's programs worked the same way on retail records, on records with other state designations, and for all products. Data tracking involved detailed tracking of the records concerned the in measures listed in the table below from the PANS database, and selected service orders from order processors to the performance result. The following table shows the specific recalculations that were performed. In all cases Liberty's results matched those reported by Qwest.

Measure	State	Month	Product(s)
OP-3A	Montana	July 2000	Residence/Business
OP-3A	New Mexico	October 2000	Residence/Business
OP3B	Montana	July 2000	Residence/Business
OP-3B	New Mexico	October 2000	Residence/Business
OP-3C	Montana	July 2000	Residence/Business
OP-3C	New Mexico	October 2000	Residence/Business
OP-3D	Montana	July 2000	UBL ISDN
OP-3D	New Mexico	October 2000	UBL ISDN
OP-3E	Montana	July 2000	UBL ISDN
OP-3E	New Mexico	October 2000	UBL ISDN
OP-4A	Montana	July 2000	Residence/Business
OP-4A	New Mexico	October 2000	Residence/Business
OP-4B	Montana	July 2000	Residence/Business
OP-4B	New Mexico	October 2000	Residence/Business
OP-4C	Montana	July 2000	Residence/Business
OP-4C	New Mexico	October 2000	Residence/Business
OP-4D	Montana	July 2000	UBL ISDN
OP-4D	New Mexico	October 2000	UBL ISDN

OP-4E	Montana	July 2000	UBL ISDN
OP-4E	New Mexico	October 2000	UBL ISDN
OP-6A1	Montana	July 2000	Residence/Business
OP-6A1	New Mexico	October 2000	Residence/Business
OP-6A2	Montana	July 2000	Residence/Business
OP-6A2	New Mexico	October 2000	Residence/Business
OP-6A3	Montana	July 2000	Residence/Business
OP-6A3	New Mexico	October 2000	Residence/Business
OP-6A4	Montana	July 2000	UBL ISDN
OP-6A4	New Mexico	October 2000	UBL ISDN
OP-6A5	Montana	July 2000	UBL ISDN
OP-6A5	New Mexico	October 2000	UBL ISDN
OP-6B1	Montana	July 2000	Residence/Business
OP-6B1	New Mexico	October 2000	Residence/Business
OP-6B2	Montana	July 2000	Residence/Business
OP-6B2	New Mexico	October 2000	Residence/Business
OP-6B3	Montana	July 2000	Residence/Business
OP-6B3	New Mexico	October 2000	Residence/Business
OP-6B4	Montana	July 2000	UBL ISDN
OP-6B4	New Mexico	October 2000	UBL ISDN
OP-6B5	Montana	July 2000	UBL ISDN
OP-6B5	New Mexico	October 2000	UBL ISDN

4. Findings and Conclusions

a. Performance Measure Release Date

OP-3, OP-4, and OP-6 were considered as ready for release as of February 21, 2001.

b. Exceptions

There were no exceptions related to these performance measures.

c. Observations

There were four observations related to these performance measures. Observations 1005, 1008, and 1013 are discussed in the analysis section above. Observation 1005 applied to many performance measures; it is closed for the purposes of OP-3, OP-4, and OP-6. Observations 1008 and 1013 have been closed. Liberty withdrew observation 1014 on December 21, 2000 on the basis of Qwest's explanation of the method used to exclude orders delayed due to customer-caused reasons. After the release of OP-4, Liberty issued Observation 1022, which noted a potential problem with comparability between wholesale and retail due to expedited provisioning that may be available to CLEC wholesale orders. Liberty discussed this matter with Qwest and investigated Qwest's systems and ordering history. Liberty confirmed that Qwest does not track expedited order activity and could not provide data that would detail the percentage of total order activity is comprised of expedited orders. However, Qwest did have information on the volumes of orders completed in less than standard installation intervals. This data would include all expedited order activity, because expedited orders would, by definition, be completed in less than the standard installation interval. This data would also include orders completed for other reasons in less than the standard installation interval. For example, in June 2001, data for shorter than standard interval installations show that for both wholesale and retail orders, less than 1 percent were completed in less than the standard interval. Since expedited orders are less than 1 percent of all order activity, both on the retail and wholesale side, such orders cannot skew significantly performance results. Therefore, Liberty closed Observation 1022.

d. Conclusions

OP-3 provides an accurate measure related to the extent to which Qwest's meets installation commitments. OP-4 provides an accurate measure of the average time required by Qwest to install services. OP-6 provides an accurate measure of the extent to which late orders are completed beyond the committed due date.

5. Recommendations

Qwest should regularly track the number of records that are excluded for various reasons. If during any reporting period there is a significant change from previously observed percentages of the total number of records, Qwest should investigate the reasons for such change. This will provide an additional check on the integrity of the data. On the basis of its review of excluded records, Liberty sees no reason to make this a separate performance measure, but rather should be an internal Qwest check for the reasonableness of reported results.

Also after the release of these measures, Qwest planned to develop a method to use revised due dates on orders for which the customer requested a later date. After approval of the related change to the PID, the TAG requested that Liberty audit this change. Liberty reviewed this matter with Qwest's regulatory reporting group and with the responsible programmers. However, there were delays in actually implementing the change and Liberty did not complete its audit of this particular aspect of the affected measures. Liberty recommends that this change be examined in some future audit or review of the performance measures.

C. OP-5 – New Service Installation Quality

1. Introduction and Background

Performance measure OP-5 is intended to help evaluate the quality of ordering and installation of services by reporting the percentage of average monthly new order installations that were free of trouble reports for the first 30 days. It is important that customers who switch carriers not have service problems soon after the change of carriers.

OP-5 reports the monthly average percentage of new installations that are free of trouble reports within 30 calendar days of initial installation. The number of new installations used in both the numerator and denominator of the formula for OP-5 is the average of the current and prior months' inward orders including change orders for additional lines. The number of trouble reports used in the numerator is the total of all trouble reports closed during the reporting period and that were received within 30 days of the date of original installation.

There are some unique characteristics of OP-5 that should be known to those who may use the measure's results. The number of trouble reports used in this measure is reported on a per-line basis, while the number of orders used in the measure is reported on a per-order basis. It is possible that for a particular state and product, the number of trouble reports could exceed the average number of orders and thus produce a negative result. Qwest's program limits the numerator to a minimum of zero. A single-line installation could have multiple troubles within the first 30 days, and hus bias the OP-5 result downward. However, a single installation order could involve multiple lines or circuits, and troubles could be experienced on separate lines or circuits within the first 30 days.

Certain types of trouble reports are excluded from he measure. These are specifically identified in the PID and relate to non-Qwest problems such as those caused by customer-owned equipment, troubles beyond the network interface, and customer actions. In addition, if a subsequent trouble report is received before the original trouble report is closed, the subsequent report is not counted in the measure. The PID also lists specific types of orders that are excluded from the measure. These are the same types that were listed for measures OP-3, OP-4, and OP-6, such as invalid due dates and invalid product codes.

OP-5 is reported on a product-basis, including resale products such a residential single line service and centrex, unbundled dedicated transport, and various types of unbundled loops. All of the products are listed in the PID. Qwest indicates that it is reporting on all products except advanced services such as dark fiber and extended loops. Qwest began reporting for line sharing starting with the January 2001 results. The standard for measurement is parity with a comparable

retail service, except for those same advanced-services products, which are diagnostic measures. These standards are also listed out in the PID.

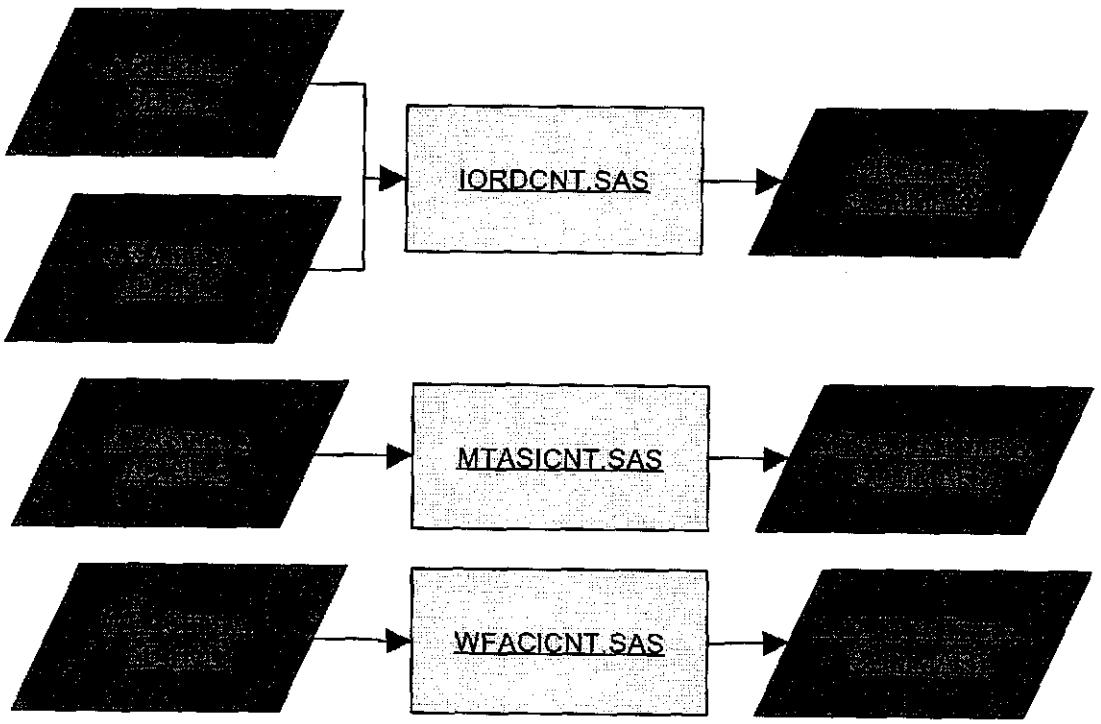
2. Overall Summary

OP-5 can be released for OSS testing. There are no outstanding exceptions or observations related these measures.

3. Analysis

Data Flow

Data related to new service installation quality exist in the "ad hoc" files created by SAS programs for customer records management, and trouble reports from MTAS and WFAC. The program *iordcnt.sas* processes the CRM *ad hoc* to count instances of new service installation. The programs *mtasicnt.sas* and *wfacicnt.sas* process the MTAS and WFAC *ad hoc* files to count instances of trouble reports. Another program called *speccalc.sas* creates the two-month average of service orders.



Liberty's review of this process involved walk-throughs of the operation of these programs, detailed review of the actual program files, and independent replication of many of the programming steps through spreadsheet logical and conditional programming.

Product Disaggregation

A problem discovered during the audit was that certain valid records were not included in the

monthly performance results (Observation 1008). This had been caused by Qwest's method to sort orders and the fact that some orders had apparently conflicting designations relative to that method. The release report for OP-3, OP-4, and OP-6 describes this observation in some detail. However, OP-5 has some unique aspects since it deals with both repair processes and provisioning processes. It is calculated by merging like groupings (either MSA-type or Zone-type) of repair and provisioning data sources. For example, DS0 is specified as a Zone-type product. Therefore Qwest uses WFAC repair data, indicating Zone-type activity, in the numerator and RSOR provisioning data for Zone-type DS0 activity in the numerator and denominator. However, in September 2000 for example, while 100 percent of repair activity for DS0 came through WFAC, only 85 percent of the RSOR DS0 activity fell into the Zone-type category, while the remainder fell into the MSA-type category. This meant that the provisioning data source feeding OP-5 was under-reported by 15 percent in comparison to the repair data source feeding the numerator. This caused the OP-5 result to be artificially deflated.

Originally, Qwest proposed to report OP-5 in a disaggregated fashion much like that used for OP-3. However, the numerator uses repair data, which does not have combinations or mixtures of both MSA-type and Zone-type orders, but the rest of the formula uses provisioning data which, for several products, does have mixtures of MSA-type and Zone-type orders. This problem was addressed by revising the PID to show that OP-5 would be reported without MSA-type or Zone-type disaggregations (*i.e.*, on a statewide basis). This solution permitted the matching of repair and provisioning data at the lowest disaggregation level possible for all products. The OP-5 program adds the MSA-type and Zone-type order activity together for OP-5.

Qwest's program for accumulating the required data for the various products had included an error that prevented the reporting of results for the Megabit product. Qwest explained the problem to Liberty and reported that it affected no other products or measures. Qwest began reporting results for OP-5 and Megabit in the report that included January 2001 results.

Recalculation and Data Tracking

Liberty recalculated and duplicated Qwest's results for one state and all products. Liberty also verified that Qwest's results for another state tracked through the process and that Qwest's results were accurately reported in the monthly performance report. Liberty's walk-through of the programs verified that they operated the same on wholesale and retail data.

During the audit, Liberty discovered that Qwest had not been calculating OP-5 using the average number of service orders for the current and prior months (Exception 1029). Qwest corrected this problem.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-5 was considered as ready-for-release as of March 8, 2001.

b. Exceptions

Exception 1029 noted that Qwest was not using the average of the current and prior months' service orders for OP-5. Qwest corrected that error.

c. Observations

There were two observations related to OP-5. Observation 1005 related to common exclusions. This matter is discussed in the release report for OP-3, OP-4, and OP-6. The specific exclusions are now listed in the OP-5 PID. Observation 1008 is discussed in the analysis section above.

d. Conclusions

OP-5 provides an accurate measure related to the quality of new installations.

5. Recommendations

Liberty has no recommendations related specifically to OP-5.

D. OP-7 – Coordinated Hot Cut Interval–Unbundled Loop

1. Introduction and Background

Performance measure OP-7 is a diagnostic measure intended to help evaluate Qwest's efficiency in moving the service of existing customers from Qwest's switches or frames to the CLEC's equipment. OP-7 reports the average time to complete coordinated "hot cuts" for unbundled loops by using the interval between the "lift" time and the completion time of Qwest's applicable tests for the loop. The formula for this measure in the PID is:

> Σ*[(Completion time – Lift time)] / (Total Number of unbundled loops with coordinated cutovers completed in the reporting period)*

The PID defines the terms in the formula as follows:

> *"Lift" time is defined as when Qwest disconnects the existing loop.*
>
> *"Completion time" is defined as when Qwest completes the applicable tests after connecting the loop to the CLEC.*

Thus, the total of the minutes between lift and completion for each unbundled loop constitutes the numerator of OP-7. The denominator is the total number of unbundled loops with coordinated cutovers during the reporting period.

The PID lists specific types of exclusions for OP-7. Two of these are the same type listed for measures OP-13A and OP-13B: invalid due dates/times or invalid start/stop dates, and records missing data essential to the calculation of the measure. A third exclusion specifies that the time associated with CLEC-caused delays be excluded from the interval. OP-7 is reported on a product basis, both for analog loops and for all other types of loops. It is disaggregated to the state level, as well as to the individual CLEC level.

2. Overall Summary

OP-7 can be released for OSS testing. There are no outstanding exceptions or observations related to this measure.

3. Analysis

During a visit to the Des Moines Center in September 2000, Liberty conducted several interviews and observed the data recording done during the cutover process. Liberty also reviewed the process used to create the unbundled loop database and reviewed the algorithms employed by Qwest's Regulatory Reporting to calculate the unbundled loop performance measures for July 2000 from this database. Liberty's analysis revealed several problems with OP-7, both in terms of the quality of the data used to calculate the measure as well as Qwest's definition and use of exclusions. This analysis led to two exception reports related to OP-7, wherein Liberty concluded that the reported results for July 2000 were inaccurate.

Qwest subsequently implemented improvements in the business processes used to collect data, and sought changes to the PID to incorporate the exclusions it had been using. Liberty has determined that Qwest has satisfactorily resolved the issues raised by Liberty in the exception reports (see the discussion of exceptions below). Liberty re-examined the unbundled loop database and reported results for January 2001, and held discussions with Qwest's Regulatory Reporting personnel regarding open issues or questions. Liberty recalculated and duplicated Qwest's January 2001 regional results, as well as results for several states and individual CLECs.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-7 was considered ready-for-release as of April 6, 2001.

b. Exceptions

There were two exceptions (E1014 and E1016) regarding this performance measure.

In Exception 1016, Liberty pointed out that Qwest was not excluding CLEC-caused delays in the cutover process from its calculation of the average interval as defined in the PID. Qwest has since clarified that there can be no CLEC-caused delays in the interval as Qwest defines it; once Qwest has lifted the first loop, it cannot experience delays caused by the CLEC until after it has laid the last loop and completed applicable tests. Qwest has also clarified that its definition of "lay time" is consistent with the PID definition of "completion time," since the lay time recorded by Qwest reflects the conclusion of any appropriate testing.

Liberty also pointed out that Qwest was omitting lines with missing or invalid lift/lay times from the OP-7 calculation, and that this exclusion was not identified in the PID. Qwest had subsequently received approval to add as exclusions for both OP-7 and OP-13: (1) any records with missing data essential to the calculation, and (2) any records with invalid start/stop dates/times or invalid scheduled date/times. The algorithm used by Qwest to calculate OP-7, as summarized in its Business Requirements document, excludes items with missing lift or lay times, or those with lift times later than lay times *(i.e.*, invalid or nonsense entries). Qwest's

algorithm now correctly reflects the permissible exclusion for records with missing data necessary to the calculation, *i.e.*, lift and lay times. It also reflects exclusions for invalid start/stop times, with lift and lay times being considered as the only relevant start/stop times examined for the OP-7 calculation. The algorithm does not, however, screen for and exclude lines with invalid scheduled dates/times, or for invalid cutover start/stop times, which is different from how this exclusion is interpreted by Qwest for the OP-13 measures. Qwest has acknowledged the differing treatment of this exclusion under OP-7 and OP-13, and has no plans to make the application of this exception consistent across the measures. Liberty therefore understands that there are no exclusions made for OP-7 relating to invalid scheduled date/times or cutover start/stop times, but only for missing or invalid lift and lay times.

For an LSR with multiple loops, Qwest's testers record the time of the first lift on the first line and the lay time on the last line. Liberty had originally noted that Qwest had used the lift and lay time of the first line of a multi-line LSR to calculate the average interval for each individual line in that LSR. The process has changed slightly since September. The OP-7 algorithm now calculates the time for each line in an LSR differently, by dividing the lay minus lift time recorded on *each* line (meant to represent the cutover duration for the total LSR) by the number of lines in that LSR. Data errors (such as different or zero lift/lay times for individual lines within an LSR) will therefore cause distorted results for multi-line LSRs due to the calculation algorithm used by Regulatory Reporting. If there are relatively few data points for a given CLEC or state, the impact on the result can be significant. Qwest has taken a reasonable approach to calculating the average number of minutes for lines in a multi-line LSR, even though its algorithm cannot compensate for those cases where each line in an LSR does not have the same lift and lay times recorded. Except for this anomaly, the algorithm calculates the average interval accurately.

Exception 1014 related to the overall quality of the data used to calculate OP-7 and OP-13. The basic process for capturing data relating to hot cuts that Liberty observed in Des Moines in September 2000 has, to a large degree, not changed significantly. Testers still enter manually information collected during the cutover process into the WFA-C system. A data specialist still creates an unbundled loop database using extracted information from WFA-C, TIRKS, and the CRM system and by manually re-entering into the database the same data entered into WFA-C by the testers. What has changed since Liberty's visit is that management has implemented much more extensive training and coaching of testers regarding data entry, and the centers have begun to retain paper copies of the information entered into WFA-C, *i.e.*, hard copies of the data input screens so that missing data or errors may possibly be corrected at a later time if an error or missing information is caught by the data specialist or Regulatory Reporting.

The data entry system does not mandate entry of data or check specific data items, although Qwest had introduced some pop-up windows to prompt the tester during the data input process. Qwest has also revised its OSSCN form used by testers to record data during the cutover process before they enter the data into WFA-C, adding several areas for information to be noted regarding early cuts, approvals, and CLEC delays (but not the length of these delays). The improved form should help testers capture data more accurately and thoroughly during the cutover process. Qwest also relies on the personnel reviewing the data to identify possible errors or missing entries.

On the basis of its review of July 2000 data and observation of data collection during the cutover process, Liberty had concluded that data input errors and oversights were not uncommon. The

quality of data has improved significantly since that initial review. The improvements had been slowed due to the fact that centers other than Des Moines are now entering data, and each new center had its own learning curve with respect to data quality. Starting with the January 2001 data, Liberty observed far less missing data (such as lift/lay times, start/stop times, and CLEC contact names/phone numbers) and fewer invalid or nonsense data entries. For the most part, mistakes of this type that occur now should have a negligible effect on reported results for OP-7. In a few cases, however, data entry errors could still have a sizable effect on reported results, as noted above, where null or differing entries under lift/lay times for one or more lines within a multi-line LSR could skew results on the state/CLEC level.

c. Observations

There were no observations related to OP-7.

d. Conclusions

OP-7 provides an accurate measure related to the efficiency of completing coordinated hot cuts.

5. Recommendations

Due to the sensitivity of certain disaggregated results to the effects of bad data, Liberty recommends that Qwest closely monitor the individual CLEC- and state-level results for OP-7. Specifically, Qwest should isolate those results that are based on relatively few data points. Qwest should review the data used to calculate these results to ascertain if the data quality errors discussed above, *i.e.*, differing lift/lay times or zero times for individual lines within a given LSR, in fact exist. To the extent that errors do exist, Qwest should manually recalculate and report the results for the given CLEC or state.

Qwest needs to continue its efforts to ensure that manually recorded data are captured accurately and completely. Any future reviews or monitoring of OP-7 should focus in part on the quality and completeness of the raw input data.

E. OP-8 – Number Portability Timeliness

1. Introduction and Background

Performance measure OP-8 is intended to help evaluate Qwest's timeliness in providing cutovers of number portability. A key to robust local competition is the ability of customers to retain their telephone number when they switch local carriers. To accomplish local number portability *(LNP)*, Qwest must set switches called triggers for the telephone number of a customer changing carriers. An LNP trigger may also be referred to as a Line-Side-Attribute. If a trigger was not set prior to the time of the change in service provider, callers would not be able to reach the customer at the original telephone number.

OP-8 consists of two sub-measures to differentiate between LNP associated with a coordinated cutover of a loop (OP-8B) and LNP for which coordination with a loop cutover was not requested (OP-8C). More specifically, the PID requires that OP-8B measures all orders for LNP

coordinated with unbundled loops that are completed during the monthly reporting period. OP-8C measures all other orders for LNP completed during the reporting period including standalone LNP coordinated with other than Qwest-provided unbundled loops and non-coordinated LNP. Both sub-measures are subject to specific exclusions identified in the PID. Both are expressed as a percentage of the total LNP like-kind activations completed in the period. Both have a standard of 95 percent.

2. Overall Summary

OP-8 can be released for OSS testing. There are no outstanding exceptions or observations related to this measure. OP-8 should be thoroughly reviewed again in the future because of the very early stage of the processes used to report results.

3. Analysis

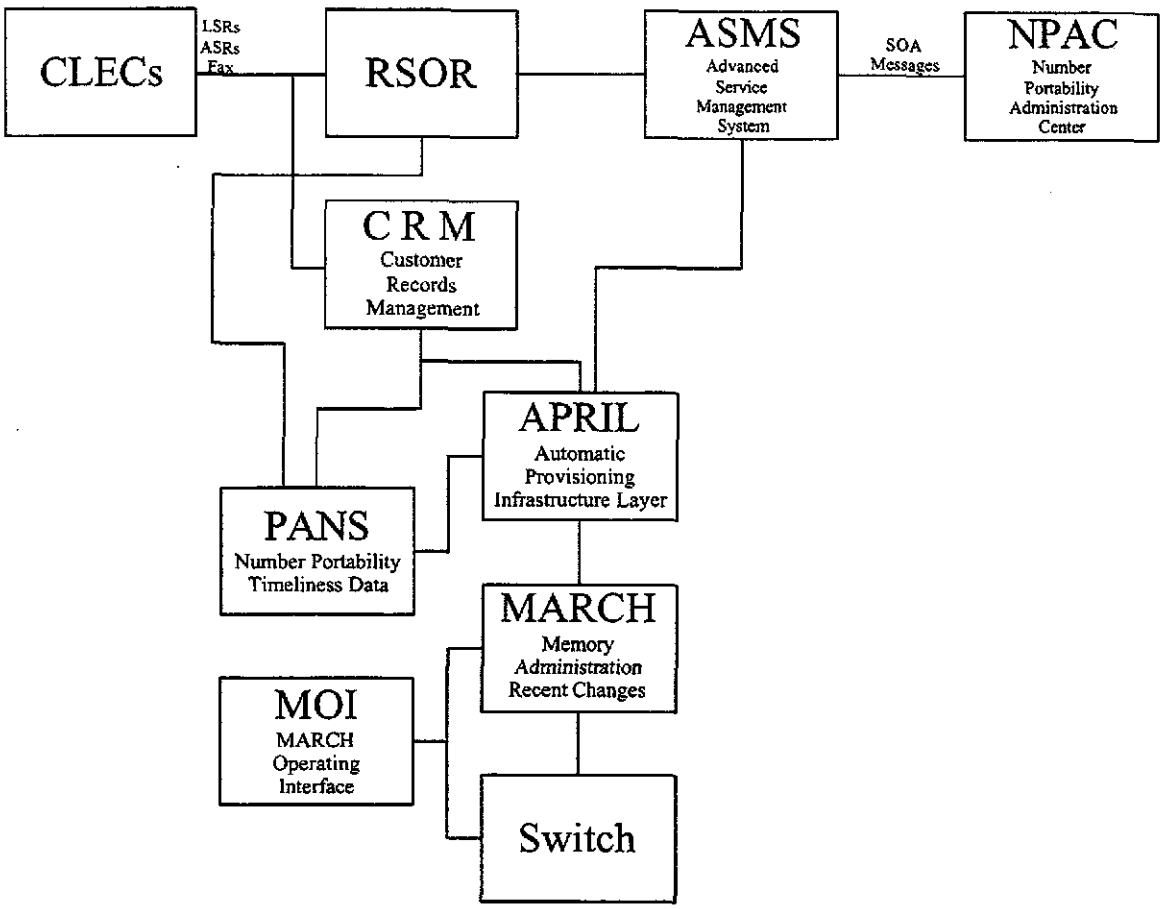
When Liberty's audit began, Qwest's method for collecting and using the data required for OP-8 was practically all manual. Qwest had a team of data personnel that used information from customer records management, and collected corresponding information from service order processors and trigger set data from a system called MOI *(March Operating Interface)*. A second Qwest team checked the manual actions of the first team. After auditing the process and methods that Qwest used for OP-8, Liberty decided it could not conclude that the measure accurately reported actual performance. (See Exception 1003 below.)

The number of steps involved with the manual querying of data and the re-typing of that data in Excel Spreadsheets meant that the number of occurrences of mis-typing and other manual errors increased the possibility of incomplete and inaccurate information. Retrieval of the required data directly from the appropriate systems and reducing the manual intervention in the collection of data would reduce the opportunities for error.

Qwest completed the development of a new process to replace most of the manual activities with an automated method for assembling and calculating OP-8. There are tens of thousands of records that affect OP-8 each month, the ability to use a computerized process for gathering and comparing telephone numbers, completion dates and times, purchase order numbers, and the like was important for economically measuring LNP timeliness. Qwest reported results from the new process starting with the results for the month of October 2000.

Liberty's early audit of OP-8 also noted that many records of LNP were being counted against Qwest's performance, not because triggers were set late, but rather because Qwest could not identify certain LNP requests with automated triggers. Process computerization and PID changes that specifically identify data records that are excluded corrected these problems.

The diagram below is a simplified sketch showing some of the parties and systems involved in collecting the data necessary for the OP-8 measures.



There are both automated and manual, daily and monthly processes used for this measure. The daily process attempts to match ported telephone numbers with service order information, switch type data, and the requisition type from customer records. The Number Portability Administration Center system *(NPAC)* and Advanced Service Management System *(ASMS)* both provide user interfaces to initiate and maintain customer requests for an LNP action. The Automatic Provisioning Infrastructure Layer *(APRIL)* system creates a file containing the telephone numbers and other data relating to the LNP request, and sends it to the Memory Administration of Recent Changes *(MARCH)* system, which actually make the change on the switch. Records with no service order completion date are retained in a PANS database. Each month these records are matched with service order information to see if a valid completion date has been added. Daily, data from the automated process are e-mailed to the Wholesale Regulatory Reporting Group, which attempts to find order information for the ported telephone numbers in cases where that data could not be obtained from the automated process. When they can successfully find the missing order data, it is saved and merged with the monthly files from the automated process. Finally, information from the coordinated hot cut center in Des Moines is used to distinguish those telephone numbers that were ported with a coordinated loop from all others and tests are completed to determine if trigger set date and time were before the service order completion date and frame due time or CLEC due time.

The processes required to report OP-8 are complex. Qwest's efforts to automate those processes are appropriate. However, those processes are still being refined. For example, the reported

results that included November as the latest month were in error because the manually processed records did not get included. (Liberty's recalculation of the corrected results for November showed them to be correct.) Also, characteristics of this measure that are out of Qwest's control have the potential to lead to errors. For example, many of the telephone numbers that are reported twice a day are duplicates that must be eliminated and many requests for LNP are subsequently cancelled. Qwest is aware of these characteristics, but to the extent manual processes are still in place, errors could occur.

Liberty's analysis of OP-8 included review and observation of the manual processes, review of the SAS code used in the automated processes, tracking data from the daily telephone number inputs to the daily files and to the final monthly data that support results, recalculation of the results reported for December 2000, and the corrected results for prior months. Liberty duplicated Qwest's results. However, Liberty found that Qwest's process documentation did not correctly describe the logic used for determining whether the commitment had been met for the case of equal set and due dates for OP-8B.

Liberty assessed the number and type of records excluded from the measure to ensure that they were occurring randomly and that their nature would not skew the results. As an example, the completed records for the month of December totaled 65,443. Nearly 28 percent (18,260) were actually cancelled orders. About 15 percent (9,514) of the records were LNP requests without automatic triggers. These were so classified because of technical reasons such as the type of central office switch involved, special translations numbers, remote call forwarding, and DID provisioning for the 5ESS switch. Another 30 records indicated that the request was not for an existing service. The numbers for November were very similar.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-8B and OP-8C were considered as ready for release as of February 22, 2001.

b. Exceptions

There was one exception, E1003, related to OP-8. It dealt with problems with the all-manual processes and excluded data that was not specifically identified in the PID. Liberty closed that exception on February 1, 2001 on the basis of clarifications made by Qwest, PID changes approved by the TAG, and Liberty's continuing audit activities.

c. Observations

There were no observations related to OP-8.

d. Conclusions

OP-8 appears to provide a reasonably accurate measure related to the timeliness of local number portability. The processes used to report OP-8 have only recently been settled, and Qwest is likely to improve those processes to more fully automate data collection. Performance results on at least two occasions were either reported inaccurately or could not be reported at all. The regulatory reporting system documentation is not completely accurate.

5. Recommendations

Liberty recommends that OP-8 be considered a candidate for a thorough review at some time in the future. Qwest should routinely report on any changes it has made in the processes used for OP-8 and any problems with the reported results that is has found. The timing of the future review should be determined on the basis of Qwest's reports and the confidence it has gained from a stable process and consistently reported results. Qwest should also review and correct wherever appropriate the process documentation immediately.

F. OP-13A – Coordinated Hot Cuts On Time – Unbundled Loop

1. Introduction and Background

Performance measure OP-13A is intended to measure the percentage of LSRs for coordinated cuts of unbundled loops that are completed on time, focusing on cuts completed within one hour of the committed order due time. For LSRs to be considered "on time," the CLEC must agree to the start time, and Qwest must (1) receive verbal CLEC approval before starting the cut or lifting the bop, (2) complete the physical work and appropriate tests, (3) complete the Qwest portion of any associated LNP orders, and (4) call the CLEC with completion information, all within one hour of the committed order due time. The formula for this measure in the PID is:

> *(Count of LSRs for coordinated unbundled loop cuts completed "on time") / (total number of LSRs for coordinated unbundled loop cuts completed in the reporting period) x 100*

Relevant terms in the definition for OP-13A are further defined in the PID as follows:

> *"Committed order due time" is based on the number and type of loops involved in the cut and is calculated by adding the applicable time interval from the following list to the scheduled start time:*
>
> *For analog unbundled loops:*
>
> *1 to 16 lines: 1 hour*
>
> *17 to 24 lines: 2 hours*
>
> *25+ lines: Project (not included in OP-13A)*
>
> *For all other unbundled loops:*
>
> *1 to 5 lines: 1 hour*
>
> *6 to 8 lines: 2 hours*
>
> *9 to 11 lines: 3 hours*
>
> *12 to 24 lines: 4 hours*
>
> *25+ lines: Project (not included in OP-13A)*
>
> *"Scheduled start time" is defined as the confirmed appointment time (as stated on the FOC) or a newly negotiated appointment time.*

In cases where Qwest's records are missing evidence of CLEC approval of the cutover, the LSRs will be counted as a "miss" under OP-13A.

The PID lists four specific types of exclusions for OP-13A and -13B. Two of these, records with invalid start/stop dates/times or scheduled dates/times, and records missing data essential to the calculation of the measure, are also applicable to OP-7 (but treated differently). "Projects," or LSRs involving 25 or more lines, are also excluded under OP-13A. The last exclusion specifies that records with invalid completion dates be excluded.

There are three additional exclusions that pertain exclusively to OP-13A. First, time intervals following the scheduled start time or during the cutover process associated with CLEC-caused delays are to be excluded. LSRs whose start was delayed 30 minutes or more after the appointment time because the CLEC was not ready are also to be excluded from the measure. Finally, LSRs that involve CLEC-requested non-standard methods, processes, or timelines are to be excluded. Typically, these are projects, but the terms are somewhat broader in that they allow the exclusion of any LSRs that are associated with trials. OP-13A is reported on a product basis, both for analog loops and for all other types of loops. It is disaggregated to the state level, as well as to the individual CLEC level. The standard for OP-13A is 95 percent or more.

2. Overall Summary

OP-13A can be released for OSS testing. There are no outstanding exceptions or observations related to these measures.

3. Analysis

During a visit to the Des Moines Center in September 2000, Liberty conducted several interviews and observed the data recording done during the cutover process. Liberty also reviewed the process used to create the unbundled loop database and reviewed the algorithms employed by Qwest's Regulatory Reporting to calculate the unbundled loop performance measures for July 2000 from this database. Liberty's analysis revealed several problems with OP-13A, both in terms of the quality of the data used to calculate this measure as well as Qwest's definition and use of exclusions. This analysis led to two exception reports related to OP-13A, wherein Liberty concluded that the reported results for July 2000 were inaccurate.

Qwest subsequently implemented improvements in the business processes used to collect data, and sought changes to the PID to incorporate the exclusions it had been using. Liberty re-examined the unbundled loop database and reported results for January 2001, and held discussions with Qwest's Regulatory Reporting personnel regarding open issues or questions. Liberty found that Qwest had not fully captured the exclusions for OP-13A; Qwest then agreed to make changes to its algorithm to incorporate Liberty's concerns. Liberty subsequently determined that Qwest had satisfactorily resolved the issues raised by Liberty both in the exception reports (see the discussion of exceptions below) and during the latest set of discussions. Liberty recalculated and duplicated Qwest's January 2001 regional results, as well as results for several states and individual CLECs.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-13A was considered ready-for-release as of April 7, 2001.

b. Exceptions

There were two exceptions regarding this performance measure, E1014 and E1017.

In Exception 1017, Liberty identified a number of definition and exclusion problems relating to OP-13A. In particular, Qwest had been using a convention of a 30-minute window to measure whether it "started on time." Qwest is no longer using this convention. Also, Liberty stated that Qwest should use the scheduled order due time to calculate the interval to be compared to the standard. Qwest has taken another approach, using elapsed minutes, to compare to the "committed order due time" standard plus one hour. This treatment is consistent with the PID, insofar as the original scheduled appointment time is not considered to be the mandatory starting time for the cutover.

Liberty noted that Qwest had not been able to capture the time spent in CLEC delays, and simply treated all time between start and stop times as under Qwest's control. It also could not determine whether late start times were the result of CLEC delay, and treated LSRs with start times more than 30 minutes late as a "miss." Qwest had also excluded LSRs with more than 25 lines, which was inconsistent with the PID at that time. Qwest began to implement some changes in its data collecting and to its OP-13A algorithm in August 2000, including adding a "CLEC-issue" flag. Qwest's interpretation of the PID continued to evolve over time.

Like OP13-B, the PID now states that LSRs with no evidence of CLEC approval of the cutover process will be treated as a "miss;" thus, any item that is a "miss" under OP13-B would automatically be a "miss" under OP-13A. When Liberty reexamined OP-13A data for January 2001, it found that the algorithm used by Regulatory Reporting to generate OP-13A was missing logic that checked whether LSRs that were not cut early had CLEC approval. This problem was relatively minor, in that it affected only four LSRs in January; Qwest subsequently corrected the logic.

As noted in Liberty's Performance Measure Release Report on OP-13B, Qwest sought the addition of several new exclusions applicable to OP-13A and OP13-B. In particular, exclusions now include: (1) LSRs with more the 25 lines, (2) records with invalid completion dates, (3) records with missing data essential to the calculation, and (4) records with invalid start/stop dates/times or invalid schedule date/times. When Liberty originally reviewed the January 2001 results, it found that Qwest had not fully implemented the programming for these exclusions. After discussions with Qwest, the company included the logic in the calculation of both OP-13A and OP-13B for these exclusions. Qwest's Regulatory Reporting personnel indicated to Liberty that the exclusions would be treated the same under both OP-13A and OP-13B, so that OP-13B would more closely represent a diagnostic of OP-13A. A fuller discussion of these issues is contained in Liberty's release of OP-13B.

Specific exclusions in the PID under OP13-A remained the same in the latest version of the PID. These specify that LSRs be excluded for loop cuts that involve CLEC-requested non-standard

methods, process, or timelines, and when the CLEC is not ready to start by 30 minutes after the appointment time. Time intervals following the scheduled start time or during the cutover process associated with CLEC-caused delays are to be excluded from the calculated interval used to compare to the PID standards. Qwest now has the capability to capture delay start and stop times in its records, and its algorithm correctly subtracts the time spent in CLEC-delay from the calculated cutover duration. Qwest also implemented an addition to its algorithm to exclude LSRs with CLEC not ready by 30 minutes after the appointment time. In particular, Qwest now checks for LSRs with a CLEC issue that have a delay start time the same as the scheduled due time (which would imply that there was a delay at the start). If the duration of the delay is greater than 30 minutes, then Qwest will exclude the LSR from OP-13A. Currently, Qwest does not process LSRs that have non-standard methods, process, or timelines; the exclusion currently allows Qwest to exclude LSRs associated with trials. Overall, Qwest's algorithm for OP-13A now accurately reflects the exclusions in the PID.

During discussions with Liberty, Qwest agreed to updates its Business Requirements document as necessary to correlate with the changes made to the algorithm. Qwest subsequently recalculated and republished results for January 2001 data that incorporated the changes noted above. Liberty successfully validated those results against the new algorithm for OP-13A.

It should be noted that Qwest currently does not have the capability to make changes to the scheduled due date or scheduled time in the WFA-C system. Qwest simply records the relevant data when the LSR is completed (even if it was rescheduled at the CLEC's request), since it did not want to cause delay by requiring the CLEC to submit a supplement to its original order. In these cases, such LSRs would be excluded from OP-13A (and OP-13B), since the scheduled date would not be the same as the completion date, *i.e.*, it would be invalid. Qwest is currently working on a method to allow changes to these dates and times within the system directly, which should eliminate the problem.

Exception 1014 related to the overall quality of the data used to calculate OP-7, OP13-A and OP13-B. The resolution of issues in Exception 1014 is explained in more detail in Liberty's Performance Measure Release Report for OP-7. Liberty believes that the quality of data has improved significantly since our initial review. Starting with the January 2001 data, Liberty observed far less missing data (such as lift/lay times, start/stop times, and CLEC contact names/phone numbers) and fewer invalid entries. For the most part, mistakes of this type that occur now should have a negligible effect on reported results for OP-13A.

There were some lingering data entry errors with January data, however. Testers did not record delay start and stop times for a significant number of LSRs that had CLEC delays; in some cases, the times that were recorded seemed inconsistent with the LSR stop and start times. In particular, of roughly 5,800 LSRs in January, roughly 750, or 13 percent, had CLEC delays but no recorded delay start or stop times. These LSRs were excluded from the calculation of OP-13A, resulting in an underreporting of results. According to Regulatory Reporting, tester mistakenly believed that delay times only had to be recorded for existing lines, rather than both new and existing lines. Additional training for testers was completed during February to reinforce the need for accurate data recording.

Liberty's review of February 2001 data indicated that the problem was mitigated to some degree during that month; of roughly 6,000 LSRs, about 300 had missing delay times, or roughly 5 percent. Liberty has been assured that the quality of the data recording will improve considerably

due to the training given to the testers during February. Liberty believes that continued improvement in data quality should correct the underreporting problem over the longer term.

c. Observations

There were no observations related to this measure.

d. Conclusions

OP-13A provides an accurate measure of the percentage of LSRs for coordinated unbundled loop cuts completed on time.

After Liberty released OP-13, Qwest initiated a PID change that eliminated the exclusion for CLECs not being ready within 30 minutes and just dealing with such matters as delay time intervals. The ROC-TAG approved the PID change and asked Liberty to audit the change. Liberty reviewed the code change, as well as the change to Qwest's business requirements document. Liberty also audited results that reflected this change and concluded that it had been properly implemented by Qwest.

5. Recommendations

Qwest needs to continue its efforts to ensure that manually recorded data are captured accurately and completely. Any future review or monitoring of OP-13A should focus in part on the quality and completeness of the raw input data. In particular, Qwest should verify that delay start and stop times are being recorded for any LSR with a CLEC-caused delay. Also, Qwest should ensure that testers are routinely trained on how to properly record delay start and stop times, given the number of seemingly invalid times encountered in the January data.

In addition to the problems discussed above, Liberty found that OP-13 (A and B) has just recently reached a stage of maturity in which it can be relied on for accurate results. Qwest needs to ensure that it continues to improve its data recording, that it ensures process documentation is consistent with the programs that perform data manipulation, and that changes in procedures and programs are carefully documented and tested.

G. OP-13B – Coordinated Cuts Started Without CLEC Approval

1. Introduction and Background

Performance measure OP-13B is a diagnostic intended to measure the percentage of all LSRs for coordinated cuts of unbundled loops that are actually started without CLEC approval. The formula for this measure in the PID is:

> *(Count of LSRs for Coordinated Unbundled Loop cuts whose actual start time occurs without CLEC approval) / (Total Number of LSRs for Coordinated Unbundled Loop Cuts completed in the reporting period) x 100*

Where Qwest's records are missing evidence of CLEC approval of the cutover, the LRS will be counted as a "miss" under OP-13B. Thus, the total number of LSRs without evidence of CLEC approval, either because of omissions in data entry or because approval was actually not received, constitutes the numerator of OP-13B. The denominator is the total number of LSRs for unbundled loops completed during the reporting period.

The PID lists four specific types of exclusions for OP-13B also applicable to OP-13A. Two of these, records with invalid start/stop dates/times or scheduled dates/times, and records missing data essential to the calculation of the measure, are also applicable to OP-7. "Projects," or LSRs involving 25 or more lines, are also excluded under OP-13B. The last exclusion specifies that records with invalid completion dates be excluded. OP-13B is reported on a product basis, both for analog loops and for all other types of loops. It is disaggregated to the state level, as well as to the individual CLEC level.

2. Overall Summary

OP-13B can be released for OSS testing. There are no outstanding exceptions or observations related to these measures.

3. Analysis

During a visit to the Des Moines Center in September 2000, Liberty conducted several interviews and observed the data recording done during the cutover process. Liberty also reviewed the process used to create the unbundled loop database and reviewed the algorithms employed by Qwest's Regulatory Reporting to calculate the unbundled loop performance measures for July 2000 from this database. Liberty's analysis revealed several problems with OP-13B: the quality of the data used to calculate this measure, Qwest's definition and use of exclusions, and calculation errors. This analysis led to two exception reports related to OP-13B, wherein Liberty concluded that the reported results for July 2000 were inaccurate.

Qwest subsequently implemented improvements in the business processes used to collect data, and sought changes to the PID to clarify exclusions. Liberty has determined that Qwest has satisfactorily resolved the issues raised in the exception reports (see the discussion of exceptions below). Liberty re-examined the unbundled loop database and reported results for January 2001, and held discussions with Qwest's Regulatory Reporting personnel regarding open issues or questions. Liberty recalculated and duplicated Qwest's January 2001 regional results, as well as results for several states and individual CLECs.

4. Findings and Conclusions

a. Performance Measure Release Date

OP-13B was considered ready-for-release as of April 6, 2001.

b. Exceptions

There were two exceptions regarding this performance measure, E1014 and E1015.

In Exception 1015, Liberty originally noted that Qwest was using the existence of entries in the CLEC contact name and CLEC contact phone number fields as criteria for whether they had approval to start the cut. When Liberty reviewed July 2000 data, the sheer volume of missing data resulted in Qwest reporting more LSRs as having no approval than was actually the case. At that time, there was no exclusion in the PID for missing data, nor was there any specific clarification for missing data relating to CLEC approval. Qwest subsequently received approval to add new language in the PID. The PID states that records with missing data essential to the calculation of the measurement will be excluded, but clarifies that this does not apply to missing record evidence of CLEC approval. Indeed, the PID specifically states that, where Qwest's records are missing evidence of CLEC approval of the cutover, (*i.e.*, a CLEC contact name and phone number at a minimum) it will be treated as a "miss" under OP13-B (and OP13-A). Liberty believes this treatment is appropriate given the improvements in Qwest's data entry; it is more likely the reported results for OP-13B will reflect not securing CLEC approval rather than poor data capture processes.

Liberty also commented that the PID did not provide for exclusions under OP-13B, and that Qwest had been excluding projects and LSRs with illogical start and stop times. New exclusions were subsequently added to the PID, whereby any LSRs with more the 25 lines will be excluded, records with invalid completion dates will be excluded, and records with invalid start/stop dates/times or invalid schedule date/times will be excluded. Qwest's algorithm as described in its Business Requirements document does not reflect exclusion of projects with more than 25 lines, but Regulatory Reporting has assured Liberty that the algorithm does indeed screen out LSRs for projects. The algorithm checks for valid completion dates when it extracts only LSRs completed within the reporting month. The algorithm now also checks for and excludes LSRs with (1) missing scheduled times; (2) missing or invalid cutover start/stop times; (3) missing or invalid delay start/stop times for those LSRs with CLEC delays; and (4) invalid scheduled dates, *i.e.*, those not matching the completion date. Qwest's Regulatory Reporting personnel indicated to Liberty that these exclusions had been added to OP-13A at the same time. Although arguably some of the data is not necessary for the OP-13B calculation, Qwest concluded that it should treat the exclusions the same under OP-13A and OP-13B, so that OP-13B would more closely represent a diagnostic of OP-13A. Indeed, the number of LSRs included in OP-13A should be the same as OP-13B, except for the exclusion of LSRs with delayed starts of more than 30 minutes due because the CLEC was not ready.

Under Qwest's algorithm, if there is an LSR with an early cut, the "CLEC approval" field must reflect a "true" flag, except in cases where there was a true "VP expedite" flag, which indicates that CLEC management explicitly asked for an early cut. For LSRs with an early cut that have a true CLEC approval flag, the algorithm also checks to ensure there is a CLEC contact name and phone number recorded; if not, the item is treated as a "miss." If there is an LSR without an early cut, Qwest's algorithm does not check whether there was a true flag in the CLEC approval field, but only checks for the name and phone number for the CLEC contact. If the detailed contact information is missing, the item is a "miss." This is consistent with the new language in the PID, whereby the CLEC contact name and phone number are the required minimum evidence for CLEC approval, regardless of affirmative entries in other fields.

The algorithm currently does not explicitly treat an LSR without an early cut as a miss if the CLEC approval field is blank or false; it simply checks for a name and phone number in the CLEC contact fields to determine whether approval was received. Regulatory Reporting has stated that the business centers were not aware that they had to make an entry in the CLEC

approval field unless there was an early cut. Reportedly, testers have been given added guidance on this issue during February, and have begun using the field to note approval for all LSRs. Regulatory Reporting was undecided about whether it will modify the algorithm to include a positive check on the CLEC approval field for LSRs without an early cut. Liberty recommends that this modification be added to the algorithm to derive OP-13B results.

Finally, Liberty originally noted in its exception report that Qwest was recording whether it had approval to start the cutover process in general, rather than specific approval to lift the first loop. The definition of "actual start time" defined as the time Qwest lifts the loop was subsequently eliminated from the PID. Qwest's results still measure whether it had approval to start the cutover process, which now is consistent with the language in the PID.

Exception 1014 related to the overall quality of the data used to calculate OP-7, OP13-A, and OP13-B. The resolution of issues in Exception 1014 is explained in more detail in Liberty's Performance Measure Release Report for OP-7. Liberty believes that the quality of data has improved significantly since its initial review. Starting with the January 2001 data, Liberty observed far less missing data (such as lift/lay times, start/stop times, and CLEC contact names/phone numbers, etc.) and fewer invalid entries. For the most part, mistakes of this type that occur now should have a negligible effect on reported results for OP-13B. Whereas missing CLEC contact name and phone number previously had been attributed to data errors, Liberty believes that data entry errors have diminished to the extent that Qwest can be held to the standard added to the PID, where such LSRs are treated as a miss.

c. Observations

There were no Observations related to this measure.

d. Conclusions

OP-13B provides an accurate measure of the percentage of LSRs for coordinated unbundled loop cuts started without CLEC approval.

5. Recommendations

Qwest should make a modification to the algorithm used to calculate OP-13B to make a true flag in the CLEC approval field a mandatory condition for all LSRs. Given Qwest's assertion that its data entry process has been improved, it would be appropriate to verify this field in cases of LSRs that did not have an early cut as well as those that did.

Qwest needs to continue its efforts to ensure that manually recorded data are captured accurately and completely. Any future review or monitoring of OP-13B should focus in part on the quality and completeness of the raw input data.

In addition to the problems discussed above, Liberty found that OP-13 (A and B) has just recently reached a stage of maturity in which it can be relied on for accurate results. Qwest needs to ensure that it continues to improve its data recording, that it ensures process documentation is consistent with the programs that perform data manipulation, and that changes in procedures and programs are carefully documented and tested.

H. OP-15 – Interval for Pending Orders Delayed Past Due Date

1. Introduction and Background

OP-15 is intended to help evaluate the extent to which pending orders are delayed past the due date as of the end of the reporting period. OP-15A measures the average number of business-days that late, pending orders have been delayed beyond the original due date for reasons attributed to Qwest. OP-15B reports the number of wholesale pending orders measured in OP-15A that were delayed for Qwest facility reasons.

OP-15 is reported on a CLEC-aggregate and individual CLEC basis. Performance results are also reported for the entire Qwest region and at the state level for the various types of products common to other performance measures. The PID indicates that OP-15A is a diagnostic measure with an expectation for parity with retail service for those products with a retail comparative. OP-15B is strictly a diagnostic measure.

Qwest had difficulty developing reasonably accurate reporting for OP-15, primarily because it has a significant difference from other of the ordering-provisioning measures. The other service order performance measures, OP-3, OP-4, OP-5, and OP-6, all use completed service orders as the basis for data collection and results reporting. However, OP-15 by its basic nature involves service orders that are not completed. The result of this characteristic was that not all service order entries have been made and checked for the data set used by OP-15, and therefore some of the programming techniques used in other measures to capture the various product-level dis-aggregations did not work for OP-15. Changes to the PID, accompanied with changes to the data capture and processing programs have now permitted Qwest to report consistent and useful results for pending service orders.

2. Overall Summary

There were three observations and no exceptions that applied to OP-15. Qwest has satisfactorily resolved the issues raised in the observation reports. The performance measure is ready for release.

3. Analysis

Liberty's audit of OP-15 involved interviews with Qwest personnel, data and information requests, tracking of data through the process, review of program code, and recalculation of some results.

Liberty found that the definition for several performance measures did not include a sufficient listing of the records that Qwest excluded from the calculation results. This matter was documented in Observation 1005. The PID for OP-15 now lists six types of orders that do not count for OP-15. The most significant of these is that orders that are pending for customer-caused reasons are excluded. The other exclusions simply are not applicable orders, or orders that do not have the codes and data necessary to calculate the measure. Exclusions are identified through Qwest's "pend.sas" program. There are actually 25 specific types of exclusions that all relate to the six types listed in the PID. Liberty analyzed the exclusions that Qwest applied to the

April, 2001, data for OP-15. Of the more than 40,000 records pulled, nearly 59 percent were excluded for customer-caused reasons. However, for the wholesale orders, this exclusion accounted for only 28 percent of the total records. On the retail side, the other exclusions with a significant number of records were those with old (prior to 4/1/99) service order entry dates, and those designated as no inward activity (*i.e.*, not orders for new or additional lines). For wholesale, pending orders, there were only two exclusions (other than the those for customer-caused miss) that made up more than 1 percent of the total. Test CLEC records accounted for 2.7 percent of the records, and records with an invalid class of service designation accounted for 3.6 percent of the total whole records. Liberty concluded that the PID definition of exclusions and the relative number of excluded records resolved the issues raised in Observation 1005 as it related to OP-15.

Liberty also analyzed the excluded records for the month of May 2001, and obtained similar results. For all records, 37 percent had been excluded for customer-caused reasons; on the wholesale side this was 29 percent. Overall, Qwest used 50 percent on the records pulled, and used 63 percent of the wholesale records. The only exclusion of significance aside from those flagged for customer-caused reasons was an invalid product code, which accounted for 6 percent of the total records and the same percentage for wholesale only.

Observation 1008 reported that certain service orders were not included in the results for several OP measures because some products had orders that were classified as both designed and non-designed, and this classification was used to segregate and report measure results. Qwest's resolution of this observation resolved the issue for OP-3, -4, -5, and –6. This issue was dealt with more directly for OP-15 as a results of Observation 1019, which noted several reporting difficulties. The end result of this observation was to change the way OP-15 was reported from geographic (MSA/non-MSA and High/Low Density) levels to reporting only on a statewide basis. Qwest's reporting of OP-15 for April and May, 2001, is now consistent with the revised and approved PID. Therefore, Liberty considers the issues raised in Observations 1008 and 1019 to be resolved.

During its audit, Liberty noted that there was a lack of retail comparable reporting for March, 2001, for products that are completely designed services, while product groups that have both designed and non-designed products included the retail comparable. Qwest reported that it corrected the comparable for designed products and would begin reporting those results starting with the April, 2001, results. Liberty confirmed this to be the case. Qwest also reported that the retail comparable for LIS trunks (Feature Group D) would not be provided until the June, 2001, results were reported.

Liberty reviewed Qwest's technical documentation and business requirements documents related to OP-15. These documents are useful to Qwest personnel in the identification of the fields, methods, and exclusions used in the performance measure. Liberty recommends that Qwest improve the business requirements documents to better describe the process used in calculating OP-15 and ensuring that they are consistent with the PID in matters such as identification of the retail comparables.

Liberty recalculated the wholesale results for the state of Washington for March and April, 2001, Colorado for April, 2001, and Idaho and Colorado for the month of May, 2001. These calculations matched those reported by Qwest. Liberty's review of the program code verified that the reporting for the retail comparables used the identical designation and calculation routines.

Using Qwest's "ad hoc" file for the month of May 2001, Liberty checked the calculations for the region and several states. This helped to verify correct programming and translation from the individual records to reported results.

Liberty made an assessment of the programming logic and field instructions for assigning missed codes. The pend.sas program identifies missed codes that specifically relate to customer-caused reasons and Qwest-caused facility reasons. The default for any other codes is Qwest-caused for non-facility reasons. Liberty confirmed that Qwest mapping of missed codes to customer/company/facility designation was logical. For May 2001 and wholesale records, 1096 were excluded from the calculations because of customer-caused reasons. Over half of these records had a missed code that indicated the customer was not ready. The only other significant categories included codes for a customer-requested later appointment date and for a change in requirements by the customer. There were less than 20 records that had any type of questionable codes such as "customer disaster/work stoppage."

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure OP-15 to meet audit release requirements as of June 29, 2001. Qwest's reporting of OP-15 is accurate. Reporting is complete with the exception of the retail comparable for LIS trunks, which will begin with the June 2001 results.

b. Exceptions

There were no exceptions related to OP-15.

c. Observations

Three observations, 1005, 1008, and 1019, dealt with OP-15. As discussed in the analysis section above, the issues raised in these observations have been resolved.

d. Conclusions

OP-15 accurately reports on (1) the extent to which pending, late orders have been delayed due to Qwest, and (2) the number of late and pending orders that were delayed due to Qwest facility reasons.

5. Recommendations

Qwest should review and improve the business requirements documents related to OP-15.

Qwest should report the retail comparable for LIS trunks.

Qwest should regularly monitor the percentage of exclusions identified in the data set to help identify data problems that may arise in the future.

V. MR – Maintenance and Repair

A. MR-2 – Calls Answered within 20 Seconds – Interconnect Repair Center

1. Introduction and Background

MR-2 reports on all calls to the Interconnection and Retail Repair Centers. The purpose of this measure is to help evaluate customer access to Qwest's repair centers. The measure focuses on the number of phone calls to the Interconnection and Repair Centers answered within 20 seconds.

MR-2 measures all calls including busies and abandoned calls made to the Interconnect and Repair Center. The time is measured from the customer's first ring at the Automatic Call Distributor *(ACD)* at the time the call is placed in the queue until the call is answered. The time a customer spends in voice response unit *(VRU)* is excluded from the calculations. An abandoned call after the call reaches the ACD is counted as unanswered within the 20-second time interval. Similarly, busies are treated as calls not answered with the 20-second time interval. The ACD automatically records a call count and calculates the time for answering the call.

MR-2 is measured at the region-wide level. The reporting comparisons are CLEC aggregate and Qwest retail levels. The standard of comparison is parity.

Qwest maintains an Account Maintenance Service Center *(AMSC)* in Denver. The AMSC provides service to all CLECs and IXCs. All CLEC and IXC calls to the interconnect repair center are answered by the AMSC. If the queue becomes too large then the switch automatically moves the overflow to the Phoenix Repair Center for response. Retail Repair Call Handling Centers are located in Phoenix, Des Moines, Seattle, and Denver. The data stream for each call identifies whether the call is wholesale or retail. The Class 5-ESS switch contains the necessary logic to recognize whether a call is originated by a CLEC, IXC, or retail customer.

The Demand Forecast Center located in Plymouth, Minnesota downloads the data from the ACDs daily. The data are stored in a SAS database. The SAS database permits Qwest flexibility in querying the database and manipulating the data for differing measurement requirements. Qwest has developed a SAS program to calculate the ratios necessary for reporting MR-2.

The proprietary software that performs the ACD function is resident within the Lucent 5-ESS switch. Lucent developed and maintains the software for this function within Qwest's switch. Qwest does not have the capability to access or in any way reconfigure or reprogram the software without the assistance of Lucent.

2. Overall Summary

MR-2 can be released for OSS testing. There are no outstanding exceptions or observations related to this measure.

3. Analysis

Liberty conducted several interviews during the course of its analysis of this measure. These interviews included both direct and telephone interviews with Qwest personnel responsible for the operation of the AMSC and Repair Call Handling Center *(RCHC)*. In addition, Liberty observed the operation of the AMSC. Liberty found consistency of treatment for wholesale and retail operations.

Liberty also requested substantial documentation on the operation and training of repair center personnel. Again the material indicated that training met the operational requirements of both the wholesale and retail operations.

Because the data used to calculate MR-2 are, for the most part, mechanized, the data tracking performed by Liberty were limited. Liberty initiated its data tracking and recalculation review after the data were stored in the Call Center Access Database *(CCAD)*.

Liberty reviewed the SAS documentation for the calculation of MR-2. The documentation was adequate to determine whether the appropriate data are extracted and used in the calculation of the performance measure. Liberty also requested and received the daily data download totals from the ACDs for the months of August and September. The daily data downloads from the ACDs to CCAD are used by the Data Forecast Center to calculate the wholesale measure results. These results are furnished to Regulatory Research Group to report to the appropriate reporting bodies. Similarly, Liberty recalculated the results for these two months and determined that the SAS program was performing the calculations accurately.

4. Findings and Conclusions

a. Performance Measure Release Date

MR-2 was released effective January 30, 2001.

b. Exceptions

There was one exception (E1034) associated with this measure. Qwest corrected the calls answered column and demonstrated that MR-2 was being calculated correctly. Liberty has closed this exception.

c. Observations

There were no observations associated with this performance measure.

d. Conclusions

Qwest accurately calculates and reports its performance for measure MR-2. The measure provides an accurate comparison of wholesale customers access to repair centers with the access of retail customers to repair centers.

5. Recommendations

Liberty has no recommendations regarding performance measure MR-2. Normal monitoring of monthly performance trends and levels of service should be sufficient to identify potential problems that arise in the future.

B. MR-3 – Out of Service Cleared within 24 Hours, MR-4 – All Troubles Cleared within 48 Hours, MR-5 – All Troubles Cleared within 4 Hours, MR-6 – Mean Time to Restore

1. Introduction and Background

Performance measure MR-3 is used to evaluate the timeliness with which Qwest repairs and closes out-of-service network troubles. It measures the percentage of out-of-service trouble reports that are cleared within 24 hours of the receipt of trouble report for the products specified in the PID. Measures MR-4 and MR-5 are used to evaluate the timeliness with which Qwest clears trouble reports for all service affecting (both service-affecting and out-of-service) troubles. Measure MR-6 is also used to evaluate the timeliness of repairs. MR-4 measures all troubles cleared within 48 hours. MR-5 measures all troubles cleared within 4 hours. MR-6 evaluates the time it takes to restore services to proper operations. For all four of these measures, reporting comparisons are CLEC aggregate, individual CLEC, and Qwest retail results. The standard for comparison of the wholesale results is parity with retail, with the exception of advanced services such as shared loop and enhanced extended links, which are diagnostic measures.

Qwest reports results for MR-3, MR-4, and MR-6 by products that are classified by the following groups: dispatches within MSAs (Metropolitan Statistical Areas), dispatches outside of MSAs, no dispatch, Interval Zone (density) 1, and Interval Zone 2. Results for MR-5 are reported by product as either Interval Zone 1 or Interval Zone 2. The MTAS database is used as the source for data to measure the products that are listed under MSA disaggregation. The WFAC (Work Force Administration Control) database is used as the source for data to measure products listed for Interval Zone-type disaggregation. The basis for reporting of all four measures is the number of trouble reports that are closed during the reporting period and that involve the specified services. Time is measured from the date and time of receipt of the trouble report until the trouble is indicated as cleared.

The PID's formula for MR-3 is:

> *(Number of Out of Service Trouble Reports closed in the reporting period that are cleared within 24 hours) / (Total Number of Out of Service Trouble Reports closed in the reporting period) X 100*

The PID's formula for MR-4 is:

> *(Total trouble reports closed in the reporting period that are cleared within 48 hours) / Total number of reports closed in the reporting period) X 100*

The PID's formula for MR-5 is:

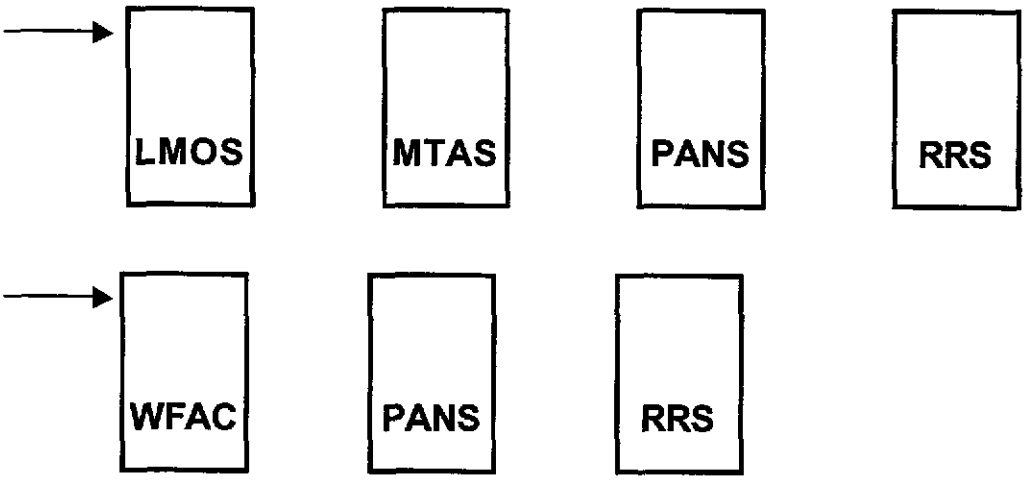
> *(Total trouble reports closed in the reporting period that are cleared within 4 hours) / Total number of reports closed in the reporting period) X 100*

The PID's formula for MR-6 is:

> *Σ(Date & Time Trouble Report Cleared) - (Date & Time Trouble Report Opened) / Total number of reports closed in the reporting period) X 100*

Certain records are excluded in determining the results for these measures. For products measured from MTAS data, trouble reports that are coded with disposition codes for customer action, non-telco plant, trouble beyond the network interface, trouble tickets with time delays due to no access, and other miscellaneous trouble are excluded. Similarly, products measured from WFAC data with trouble codes for carrier action and customer-provided-equipment trouble reports are excluded. Time delays due to "no access" are excluded from repair time. Subsequent trouble tickets, internal information trouble tickets, trouble reports received before installation completion, trouble tickets involving official company services, trouble tickets with invalid trouble receipt dates, trouble tickets with invalid cleared or closed dates, trouble reports of problems received on day of installation before provisioning is complete, trouble tickets with invalid product codes, and records with missing data essential to the calculation of the measurement are all excluded from both the MSA- and Zone-Type measurements.

The data for MR-3, MR-4, and MR-6 are processed as shown in the following diagrams. The data for MR-5 follows the second diagram below.



MSA data are processed by the MTAS system. The trouble ticket is originated when a CLEC calls the AMSC or contacts the repair desk through IMA/MEDIACC with a trouble report. The trouble ticket is populated with a trouble ticket number, date and time of receipt, MCN, trouble description, customer name, and telephone number in LMOS (Line Maintenance Operation System). LMOS populates the trouble ticket with additional information such as repair service bureau, repeat trouble, installation trouble, class of service, area code, and wire center. LMOS

contains expert systems designed to analyze the trouble and to correct the problem when possible. When LMOS cannot solve the problem, the trouble is forwarded to either RCMAC (Recent Change Memory Administration System) or a manual screener. If RCMAC cannot correct the problem, the trouble is forwarded to WFA(DI) or WFA(DO) (DI-dispatch in, DO-dispatch out) depending upon whether the type of trouble is inside or outside plant. WFA(DI) and WFA(DO) are responsible for populating missed appointment and out-of-service. The technician is dispatched if necessary to resolve the trouble. When the problem is repaired, the technician contacts the customer to verify problem solved and completes the date and time of clearing the report and the disposition code, and forwards it to LMOS.

When the trouble ticket is closed, LMOS forwards trouble ticket information at the end of the business day to MTAS for storage. MTAS maintains trouble ticket data for 90 days, after which the information is archived. Upon receiving the trouble ticket information, MTAS sends the information to PANS. PANS serves as the data source used to calculate the performance measures. RRS (Regulatory Reporting System) retrieves the MTAS data from PANS for its calculations.

Interval Zone data are processed by the WFAC system. The trouble ticket is originated when a customer contacts Qwest through either the AMSC-RSA or the repair desk. If the customer enters through the AMSC the trouble is first analyzed by the Repair Call Expert to determine if it is a trouble. If there is trouble, the Repair Service Attendant populates the ticket with the customer name, telephone number or circuit ID, major customer number, and the trouble description. In addition, from the NSDB chronic count, LOC A, LOC C, and service code are added to the trouble ticket. From WFAC the trouble is analyzed by the Integrated Testing Service and if the trouble is solved the trouble ticket is closed in WFAC. Otherwise the Designed Service Center routes the trouble to RCMAC, WFA (DO), or WFA(DI). When the repair technician resolves the trouble the Designed Services Center is notified. WFA Control inputs the data on the clearing times, closed date and time, out-of-service, actual duration, dispatch, and trouble type.

2. Overall Summary

Measures MR-3, MR-4, MR-5, and MR-6 can be released for OSS testing. There are no outstanding observations or exceptions related to these measures.

3. Analysis

Liberty's analysis of these performance measures began with interviews and data requests related to the business process and measure calculation. For both the non-designed services that use MTAS data and designed services that use WFAC data, Liberty reviewed:

- Repair Call Centers - To ascertain how trouble reports are taken, when trouble reports are created, what information is gathered, and where trouble reports are processed.
- The role that MEDIACC plays in the reporting and processing of trouble for wholesale customer and how MEDIACC creates trouble tickets in LMOS and WFAC.

- Line Maintenance Operation System *(LMOS)* – To determine how trouble tickets are created and processed; what information is added and how is ticket cleared and closed; and to determine how non-designed service troubles are managed for wholesale customers.
- Recent Change Memory Administration Center *(RCMAC)* – to determine what role RCMAC has in the maintenance and repair process for non-designed and designed products; to ascertain what fields are populated in the trouble tickets.
- Work Force Administration Control *(WFA/Control)* – to identify responsibilities associated with design services trouble tickets; to determine how trouble tickets are opened and closed; the training for technicians; and the auditing responsibilities.
- Work Force Administration/Dispatch Out *(WFA/(DO)* – to discuss responsibilities of technicians; how trouble tickets are completed for non-designed products; how troubles are cleared and closed; the definition of a commitment; and how trouble tickets are coded.
- MTAS System – to identify the method for storing trouble ticket data and the accessibility of information from front-end systems.
- WFAC – to identify the method for storing trouble ticket data and the accessibility of information from front-end systems.
- PANS – to learn how trouble tickets are stored and what format data are available.
- Wholesale Regulatory Reporting Group – to determine how the performance measures are calculated.

Data Tracking

Liberty tracked MTAS and WFAC data from the front end to the back end of the business process. Liberty initially requested from Qwest 170 randomly selected trouble tickets from retail and wholesale ticket populations in MTAS and WFAC respectively. However, because of the inflexible nature of the WFAC and MTAS systems and the burden that it would have placed on Qwest operations, Liberty agreed to an alternative method for selecting trouble ticket samples. Liberty used samples of wholesale and retail trouble tickets for specified time intervals to track data from MTAS to the RRS detailed database. Liberty required Qwest to pull approximately 170 retail and 170 wholesale trouble tickets directly from MTAS prior to its inclusion in the PANS data set. Liberty used time periods containing trouble tickets closed during the time period extending from August 1, 2000 to October 11, 2000 as its population. Liberty specified the variables that were to be provided by Qwest for each trouble ticket in the selection. Liberty then requested Qwest to pull the same time intervals from the RRS detailed data table. Liberty then compared each trouble report from MTAS to its counterpart in the RRS detail data table to ensure that the report was included when appropriate and similarly excluded when appropriate. Initially, Liberty did identify discrepancies between the data sets because the time periods were incorrectly specified. After the time periods were correctly specified Liberty did not identify any discrepancies. Liberty then compared the variables from each data set for accuracy. Again, Liberty did not identify any discrepancies.

Liberty used the same sampling technique for WFAC data. Liberty again identified specific time intervals for each data sample in order to track the data from WFAC to the RRS detail data table. Because Qwest maintains its WFAC data for only a rolling 45-day period, Liberty was restricted to using the time period extending from August 27, 2000 to October 11, 2000 for its trouble ticket population. Liberty required Qwest to pull approximately 170 wholesale and 170 retail trouble tickets directly from the WFAC data set and not from archived WFAC data in PANS. Liberty specified the variables that were to be provided by Qwest for each trouble report in the selection. The variables included in the data request were for the most part a subset of the same variables that are included in the detail data table. Liberty then requested Qwest to provide trouble reports from the same time intervals from the RRS detailed data table. Liberty compared each WFAC trouble report with its RRS detail database counterpart to determine if the trouble reports that should have been excluded and the trouble reports that should have been included were handled appropriately. Liberty determined that in the WFAC data there were trouble reports with identical numbers that were repeated more than once; however, in the detailed data table this did not occur. In addition, there was some time mismatches because of the nature of the data extraction from WFAC and the detail data table. Liberty was able to match all of the trouble reports numbers with their counterparts in the detail database along with the appropriate variables.

Business Process Audit

Because of the importance of the accuracy of the trouble tickets in the calculation of the MR performance measures, Liberty traced the maintenance and repair process from trouble ticket opened to trouble ticket closed. Liberty interviewed Qwest personnel and submitted data requests for each step of the process. In addition, Liberty requested all training manuals, handbooks, and internal audits of the trouble report process. Liberty also conducted interviews with Qwest personnel responsible for the accuracy of trouble reports.

Recalculation

Liberty conducted several interviews of Qwest personnel in learning about the performance result calculation process for both the wholesale and retail operations. In addition, Qwest responded to a number of data requests related to describing the calculation process and defining the data used. For MR-3, MR-4, MR-5, and MR-6, Liberty requested data contained in the MTAS and WFAC detail data tables and ad hoc data tables.

The raw data are located in the detail data table that is the result of the initial query where Qwest's programming rules are applied. Most exclusions occur at this point in the calculation process so that the detail database contains all trouble reports used for the calculation of the performance measures. Business rules through the SAS code are applied to the MTAS and WFAC detailed data tables to derive fields in the *ad hoc* data table to calculate the performance results.

Liberty used the states of Iowa, New Mexico, and Washington and the data from the months of July 2000 and August 2000 to recalculate the wholesale performance measures. There were 4,813 trouble tickets in the July MTAS detail data table and 5, 055 trouble tickets in the August MTAS detail data table. The WFAC wholesale detail data tables contained 599 trouble reports in July and 726 in August. Liberty then recalculated MR-3, MR-4, MR-5 and MR-6. Liberty was able to accurately recalculate the wholesale performance measures provided by Qwest.

Liberty limited its retail recalculation to July and August for the states of Iowa, New Mexico, and Washington. Liberty audited and recalculated the retail ad hoc files for these states. For the three states there were 155,709 retail trouble reports included in the July MTAS file and 165,532 retail trouble reports in the August MTAS file. The WFAC files were much smaller containing 4,864 trouble reports in July and 10,420 trouble reports in August. In all cases Liberty's results matched those of Qwest.

Because certain fields on the trouble report are used directly in the calculation of the performance reports, the accuracy of the measurements are totally dependent upon technician completing the trouble reports. In reviewing the completion of MTAS trouble reports, Liberty was unable to identify the existence of any internal audits or other studies used to verify either the accuracy of the MTAS trouble tickets or the existence of any internal process at Qwest to ensure the accuracy of the MTAS data. In an interview with Qwest personnel, there was an indication that a single study had been completed on the accuracy of the MTAS trouble tickets. However, when the study was requested, Qwest indicated that it was not a rigorous study and declined to provide it to Liberty. Liberty did review the training manuals beginning with AMSC training through LMOS and WFA(DO) and other related material. Liberty found that the manuals and materials were comprehensive and complete.

Liberty also reviewed the WFAC trouble report completion process. WFAC, unlike MTAS, has most of the fields that are essential to the performance measurements completed by WFA Control and not technicians in the field. For example, the time cleared, closed time and date, dispatch, out-of-service, and actual duration are populated in the trouble ticket by WFA Control. In addition, WFAC conducts periodic audits of designed trouble ticket accuracy at WFAC centers. Liberty reviewed the information examined and the results of some audits provided pursuant to a data request. The audits indicated that Qwest was addressing any accuracy problems involved in WFAC trouble reports.

4. Findings and Conclusions

a. Performance Measure Release Date

MR-3, MR-4, MR-5, and MR-6 were considered ready-for-release as of February 26, 2001.

b. Exceptions

Exception E1035 identified what appeared to be incorrect disaggregation of MTAS data. Qwest contended that the coding was correct and provided a clarification of the RRS documentation to support its point. Qwest revised its documentation and Liberty closed the exception.

Exception E1036 reported that certain WFAC retail trouble tickets were being measured as WFAC wholesale trouble and causing MR-3, MR-4, MR-5, and MR-6 to be incorrectly calculated. Qwest corrected it SAS code so that the trouble tickets were properly attributed to retail measures.

c. Observations

There were no observations related to MR-3 and MR-4.

Observation O1007 reported that the MR-5 and MR-6 calculations were inconsistent with the PID formula. The denominator applied by Qwest for both MR-5 and MR-6 contained the number of trouble report closed, while the PID required the number of trouble reports received. Qwest proposed changes to the PID to correct this problem; the TAG approved the proposed changes.

d. Conclusions

MR-3 accurately measures out-of-service cleared within 24 hours.

MR-4 accurately measures all troubles cleared within 48 hours.

MR-5 accurately measures all troubles cleared within 4 hours.

MR-6 accurately measures the mean time to restore.

5. Recommendations

Qwest should develop an audit process to ensure the accuracy of the MTAS trouble reports. This could be accomplished by using internal auditors with a periodic review by external auditors.

C. MR-7 – Repair Repeat Report Rate, MR-8 – Trouble Rate, MR-9 – Repair Appointments Met

1. Introduction and Background

Performance measure MR-7 is intended to help assess the effectiveness of Qwest's repair actions for specific services. MR-7 reports the number of repeated trouble reports received for the same trouble within 30 calendar days. Performance measure MR-8 is used to evaluate the overall rate of trouble reports as a percentage of the total installed base of the service or product. MR-9 is used to help evaluate the extent to which Qwest repairs services by the appointment date and time. The reporting comparisons for these measures are CLEC aggregate, individual CLEC, and Qwest retail results. The standard for comparison of wholesale results for MR-7, MR-8, and MR-9 is parity with retail, with the exception of advanced services such as shared loop and enhanced extended links, which are diagnostic measures.

The MR-7 results are disaggregated at the state level and reported by products that fall into the following categories: dispatches within MSAs (Metropolitan Statistical Areas), dispatches outside of MSAs, no dispatch, Interval Zone 1 (density), and Interval Zone 2. The MR-8 results are reported at a statewide level for products listed in the PID. The MR-9 results are disaggregated at the state level and reported by products that fall into either dispatches inside of MSAs, dispatches outside of MSA, and no dispatch. The MTAS database is used to measure the products that are listed for MSA-type disaggregation. The WFAC database is used to measure products listed for interval zone-type disaggregation. The measurements include all trouble reports that are closed during the reporting period that involve the services specified in the PID.

Some records are excluded from the calculation of these measures. For products measured from MTAS data, trouble reports are excluded that are coded with disposition codes for customer

action, non-telco plant, trouble beyond the network interface, trouble tickets with time delays due to no access, and other miscellaneous classifications. Similarly, products measured from WFAC data with trouble codes for carrier action and customer provided equipment trouble reports are excluded. Time delays due to "no access" are excluded from the reported repair time in WFAC. Subsequent trouble tickets, internal information trouble tickets, trouble reports received before installation completion, trouble tickets involving official company services, trouble tickets with invalid trouble receipt dates, trouble tickets with invalid cleared or closed dates, trouble reports of problems received on day of installation before provisioning is complete, trouble tickets with invalid product codes, and records with missing data essential to the calculation of the measure are all excluded from both the MSA- and Interval Zone-type measurements.

The PID's formula for MR-7 is:

> *[(Total repeated trouble reports closed within the reporting period that were received within 30 calendar days of when the preceding initial trouble report closed) / (Total Number of Out of Service Trouble Reports closed in the reporting period)] X 100*

The PID's formula for MR-8 is:

> *[(Total number of trouble reports closed in the reporting period involving the specified service grouping) / (Total number of the specified services that are in service in the report period)] X 100*

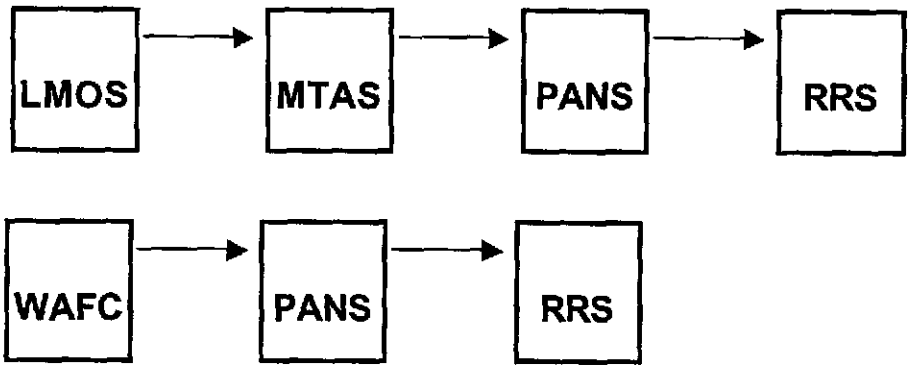
The PID's formula for MR-9 is:

> *[(Total trouble reports cleared by appointment date and time) / (Total Number of Out of Service Trouble Reports closed in the reporting period)] X 100*

Data used to calculate the MR-7 results are generated by the MTAS and WFAC systems. MTAS maintains the data used to generate the MSA-type products. WFAC maintains the data used to generate the zone-type products.

The data used to calculate the numerator of MR-8 are generated by the MTAS and WFAC data systems. The TIRKS database stores and generates the data used to generate the denominator for MR-8.

The data for MR-7 are processed as shown in the following two diagrams. The data for MR-9 are processed as shown in the second diagram.



In the MTAS system, a trouble ticket is originated when a CLEC calls the AMSC or contacts the repair desk through IMA/MEDIACC. The trouble ticket is populated with a trouble ticket number, received date and time, MCN, trouble description, customer name, and telephone number in LMOS. LMOS populates the trouble ticket with additional information such as repair service bureau, repeat trouble, installation trouble, class of service, area code, and wire center. LMOS contains expert systems designed to analyze the trouble and to correct the problem when possible. When LMOS cannot solve the problem, the trouble is forwarded to either RCMAC or a manual screener. If RCMAC cannot correct the problem, the trouble is forwarded to WFA(DI) or WFA(DO) depending upon whether the type of trouble is inside or outside plant. WFA(DO) and WFA(DI) are responsible for populating missed appointment and out-of-service occurrences. The technician is dispatched if necessary to resolve the trouble. When the problem is repaired, the technician contacts the customer to verify problem solved and populates the date and time the report cleared, the disposition code, and the date and time closed, and forwards it to LMOS.

When a trouble ticket is closed, it is forwarded at the end of the business day by LMOS to MTAS. MTAS maintains the trouble ticket data for 90 days, after which the data are archived. In addition, MTAS stores selected trouble ticket data in PANS. PANS MTAS serves as the source of data used to calculate the PIDS. RRS retrieves the MTAS data from PANS for its calculations.

In the WFAC system, a trouble ticket is originated when a CLEC contacts Qwest through either the AMSC-RSA or the IMA/MEDIACC, through which the CLEC directly accesses WFAC to create the trouble ticket. If the customer enters through the AMSC, the trouble is first analyzed by a Repair Call Expert to determine if it is a trouble, in which case he populates the ticket with the customer name, telephone number or circuit ID, major customer number, and trouble description. In addition, information extracted from the Network Service Data Base including chronic count, LOC A, LOC C, and service code variables are added to fields in the trouble ticket. From WFAC the trouble is analyzed by the Integrated Testing Service; if the trouble is solved, the trouble ticket is closed in WFAC. Otherwise the Designed Service Center routes the trouble to RCMAC, WFA (DO) or WFA(DI). When the repair technician resolves the trouble the Designed Services Center is notified. WFA Control inputs the data on the clearing times, closed date and time, out-of-service, actual duration, dispatch, actual duration, and trouble type.

2. Overall Summary

MR-7, MR-8, and MR-9 can be released for OSS testing. There are no outstanding exceptions or observations related to these measures.

3. Analysis

Liberty's analysis of these performance measures included interviews and data requests related to the business process and measure calculation. For both the non-designed services that are measured using MTAS data and the designed services that measured using WFAC data, Liberty reviewed:

- Repair Call Centers – to ascertain how trouble reports are taken, when trouble reports are created, what information is gathered, and where trouble reports are processed.
- MEDIACC – to determine the role that MEDIACC plays in the reporting and processing of trouble for wholesale customers and how MEDIACC creates trouble tickets in LMOS and WFAC.
- Line Maintenance Operation System *(LMOS)* – To determine how trouble tickets are created and processed; what information is added and how tickets are cleared and closed; how non-designed service troubles are managed for wholesale customers.
- Recent Change Memory Administration Center *(RCMAC)* – to determine what functions RCMAC performs in the maintenance and repair process and what fields are populated in the trouble ticket by this function.
- Work Force Administration Control *(WFA/Control)* – to identify responsibilities associated with design services trouble tickets; determine how trouble tickets are open and closed; the training for technicians; and auditing responsibilities.
- Work Force Administration/Dispatch Out *(WFA/(DO)* – to discuss responsibilities of the technicians; how trouble tickets are completed for non-designed products; how troubles are cleared and closed; what constitutes a commitment; and how trouble tickets are coded.
- MTAS System – to determine what data are available; how the requirements were determined for the MR performance measures; the storage for trouble ticket data; and the accessibility of information from front-end systems.
- WFAC – to identify the method for storing trouble ticket data and the accessibility of information from front-end systems.
- PANS – to learn how trouble tickets are stored and what format the data are available.
- Wholesale Regulatory Reporting Group – to determine how the performance measures are calculated.

Data Tracking

Liberty tracked MTAS and WFAC data from the front end to the back end of the business processes. Liberty used samples of wholesale and retail trouble tickets for specified time intervals to track data from MTAS to the RRS detailed database. Liberty required Qwest to pull approximately 170 retail and 170 wholesale trouble tickets directly from MTAS prior to its inclusion in the PANS data set. Liberty used time periods containing trouble tickets closed during the time period extending from August 1, 2000 to October 11, 2000 as its population. Liberty specified the variables that were to be provided by Qwest for each trouble ticket in the selection. Liberty requested Qwest pull data for the same time intervals from the RRS detailed data table. Liberty compared each trouble report from MTAS to its counterpart in the RRS detail data table to ensure that the trouble report was included when appropriate and similarly excluded when appropriate. Initially, Liberty did identify discrepancies between the data tables because the time periods for the detail data tables were incorrectly specified during the data extraction process by Qwest. After the time periods were correctly specified, Liberty did not identify any discrepancies. Liberty compared the variables from each data set for accuracy. Again, Liberty did not identify any discrepancies.

Liberty used the same sampling technique for WFAC data. Liberty again identified specific time intervals for each data sample in order to track the data from WFAC to the RRS detail data table. Because Qwest maintains its WFAC data for a rolling 45-day period, Liberty was restricted to using the time period extending from August 27, 2000 to October 11, 2000 for its trouble ticket population. Liberty required Qwest to pull approximately 170 wholesale and 170 retail trouble tickets directly from the WFAC data set and not from archived WFAC data in PANS. Liberty specified the variables that were to be provided by Qwest for each trouble report in the selection. The variables included in the data request were for the most part a subset of the same variables that are included in the detail data table. Liberty then requested Qwest to provide trouble reports from the same time intervals from the RRS detail data table. Liberty compared each WFAC trouble report with its RRS detail database counterpart to determine if the trouble reports that should have been excluded and the trouble reports that should have been included were handled appropriately. Liberty determined that in the WFAC data there were trouble reports with identical numbers that were repeated more than once, however in the detailed data table this did not occur. In addition, there was some time mismatches because of the nature of the data extraction from WFAC and the detail data table. Liberty was able to match all of the trouble reports numbers with their counterparts in the detail database along with the appropriate variables.

Business Process Audit

Because of the importance of the accuracy of the trouble tickets in the calculation of these performance measures, Liberty traced the maintenance and repair process from trouble ticket opened to trouble ticket closed. Liberty interviewed Qwest personnel and reviewed data request responses for each step of the process. In addition, Liberty requested all training manuals, handbooks, and internal audits of the trouble report process. Liberty also conducted interviews with Qwest personnel responsible for the accuracy of trouble reports.

In reviewing the completion of MTAS trouble reports, Liberty was unable to identify the existence of any internal audits or other studies to verify either the accuracy of the MTAS trouble tickets or the existence of any internal process at Qwest to ensure the accuracy of the MTAS

data. In an interview with Qwest personnel, there was an indication that a single study had been completed on the accuracy of the MTAS trouble tickets. However, when the study was requested, Qwest indicated that it was not a rigorous study and declined to provide it to Liberty. Liberty reviewed the training manuals beginning with AMSC training through LMOS and WFA(DO) and other related material. Liberty found that the manuals and materials to be comprehensive and complete. Because certain essential fields on the trouble report are used directly in the calculation of the performance reports, the accuracy of the measurements are dependent upon technician completing the trouble reports accurately.

Liberty also reviewed the WFAC trouble report completion process. WFAC, unlike MTAS, has most of the fields that are essential to the performance measurements completed by WFA Control and not technicians in the field. In addition, WFAC conducts periodic audits of designed trouble ticket accuracy in WFAC centers. Liberty reviewed the results of the audits and though the results were not perfect, Qwest has in place a method for addressing the accuracy problems of the WFAC trouble reports.

Recalculation

Liberty requested data related to MR-7, MR-8, and MR-9 contained in the MTAS and WFAC detail data tables and ad hoc data tables to perform recalculations. To calculate the denominator for MR-8, Liberty requested the TIRKS data contained in the detailed database. The raw data are located in the detail data table that is the result of the initial query where Qwest's programming rules are applied. Most of the specified exclusions occur at this point in the calculation process; the detail data table contains all trouble reports used for the calculation of the performance measures. Business rules are applied by Qwest's programs to the MTAS and WFAC detailed data tables to derive fields in the ad hoc data table to calculate the performance measures.

Liberty's used the states of Iowa, New Mexico, and Washington and the data from the months of July 2000 and August 2000 to recalculate the wholesale performance measures. There were 4,813 trouble tickets in the July MTAS detail data table and 5, 055 trouble tickets in the August MTAS detail data table. The WFAC wholesale detail data tables contained 599 trouble reports in July and 726 in August. Liberty then recalculated MR-7 and MR-9. Liberty was able to accurately recalculate the wholesale performance measures provided by Qwest.

For its retail recalculation, Liberty used July and August for the states of Iowa, New Mexico, and Washington. For the three states there were 155,709 retail trouble reports included in the July MTAS file and 165,532 retail trouble reports in the August MTAS file. The WFAC files were much smaller containing 4,864 trouble reports in July and 10,420 trouble reports in August. In all cases Liberty's results matched those of Qwest.

4. Findings and Conclusions

a. Performance Measure Release Date

MR-7, MR-8, and MR-9 were considered ready-for-release as of February 26, 2001.

b. Exceptions

Exception E1018 reported that the MR-7 and MR-8 calculations were inconsistent with the PID formula. The denominator for MR-7 and the numerator for MR-8 applied by Qwest contained the number of trouble report closed, while the PID required the number of trouble reports received. Qwest proposed changes to the PID to correct this problem; the TAG approved the proposed changes.

Exception E1035 applied to MR-7 and MR-9 and identified what appeared to be incorrect disaggregation of MTAS data. Qwest contended that the coding was correct and provided a clarification of the RRS documentation to support its point. Qwest revised its documentation and Liberty closed the exception.

Exception E1036 applied to MR-7 and reported that certain WFAC retail trouble tickets were being measured as WFAC wholesale trouble and causing MR-7 to be incorrectly calculated. Qwest corrected it SAS code so that the trouble tickets were properly attributed to retail measures.

c. Observations

Observation O1007 reported that the MR-9 calculations were inconsistent with the PID formula. The denominator applied by Qwest contained the number of trouble report closed, while the PID required the number of trouble reports received. Qwest proposed changes to the PID to correct this problem; the TAG approved the proposed changes.

d. Conclusions

MR-7 accurately measures repeat trouble reports occurring within the last 30 days.

MR-8 accurately measures the overall rate of trouble reports.

MR-9 accurately measures repair appointments met.

5. Recommendations

Liberty recommends that Qwest develop an audit process to ensure the accuracy of the MTAS trouble reports. This could be accomplished by using internal auditors with a periodic review by external auditors.

D. MR-10 – Customer and Non-Qwest Related Trouble Reports

1. Introduction and Background

Performance measure MR-10 is intended to help evaluate the extent that trouble reports are customer-related. It provides diagnostic information to help address potential issues that may be raised by the other MR performance measures. MR-10 measures the number of trouble reports

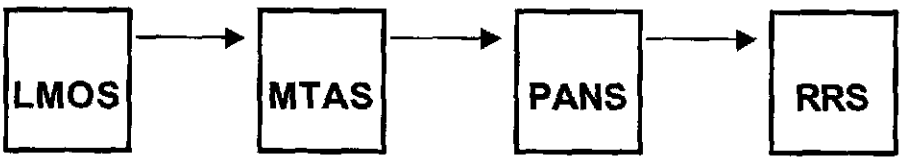
that are attributable to the customer as a percentage of the closed trouble tickets for each product. Reporting for MR-10 is at a statewide level. MR-10 is a diagnostic measure.

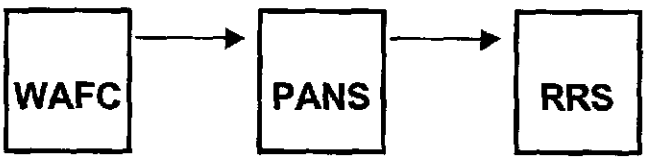
For products measured from MTAS data, trouble reports that are coded with disposition codes for customer action, non-telco plant, trouble beyond network interface, trouble tickets with time delays due to no access, and other miscellaneous trouble are included. Similarly, products measured from WFAC data with trouble codes for carrier action and customer provided equipment are included. Subsequent trouble tickets, internal information trouble tickets, trouble reports received before installation completion, trouble tickets involving official company services, trouble tickets with invalid trouble receipt dates, trouble tickets with invalid cleared or closed dates, trouble reports of problems received on day of installation before provisioning is complete, trouble tickets with invalid product codes, and records with data essential to the calculation of the measure are all excluded.

The formula for MR-10 is:

> *[(Total number of trouble reports coded to disposition codes listed above) / (Total Number of trouble reports closed in the period)] X 100*

The data for MR-10 are processed as shown in the following diagrams and described in the release report for MR-3 through MR-6.





2. Overall Summary

MR-10 provides an accurate measure of non-Qwest-related trouble reports. There are no outstanding observations or exception related to this measure.

3. Analysis

Liberty's review of MR-10 was similar to that described in the release report for MR-3, MR-4, MR-5, and MR-6.

4. Findings and Conclusions

a. Actual PID Release Date

MR-10 can be considered as ready for release as of February 26, 2001.

b. Exceptions

Exception E1018 reported that the MR-10 calculations were inconsistent with the PID formula. The denominator for MR-10 applied by Qwest contained the number of trouble report closed, while the PID required simply the number of trouble reports. Qwest proposed changes to the PID to correct this problem; the TAG approved the proposed changes.

Exception E1036 applied to MR-10 and reported that certain WFAC retail trouble tickets were being measured as WFAC wholesale trouble and causing the measure to be incorrectly calculated. Qwest corrected it SAS code so that the trouble tickets were properly attributed to retail measures.

c. Observations

There were no observations associated with MR-10.

d. Conclusions

MR-10 accurately measures non-Qwest-related trouble reports.

5. Recommendations

Liberty recommends that Qwest develop an audit process to ensure the accuracy of the MTAS trouble reports. This could be accomplished by using internal auditors with a periodic review by external auditors.

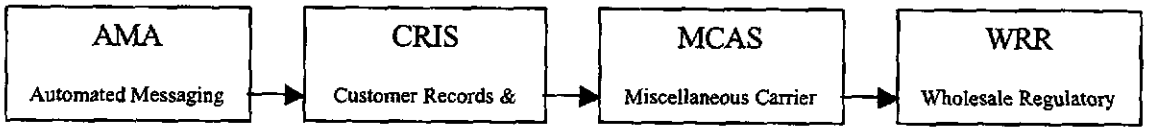
VI. BI – Billing

A. BI-1A – Time to Provide Usage Records – UNEs and Resale

1. Introduction and Background

Performance Measure BI-1 provides a means to evaluate the timeliness with which Qwest provides recorded daily usage records to CLECs. BI-1A measures the recorded daily usage for UNEs and Resale. The standard is parity with Qwest retail and the unit of measure is average number of business days. Qwest disaggregates reporting to the state level. Performance Measure BI-1A compares the time it takes Qwest to make usage details available to CLECs with the time it takes Qwest to make usage details in the same format available to its own customers.

Qwest processes the data for BI-1A as shown in the following diagram.



AMA captures all usage details that Qwest records at the central office switch. A daily file then forwards data to CRIS for formatting, sorting, and applying any necessary rates. CRIS then produces the Daily Usage File *(DUF)*, about three days after usage is recorded. These steps complete the production work of this aspect of billing; the following ones measure performance. CRIS passes the daily usage details to MCAS. At month end, MCAS rolls up the data by CLEC, thereby producing a monthly file. A hard, paper copy then goes to the Wholesale Regulatory Reporting *(WRR)* group, which enters the details manually into a spreadsheet.

WRR calculates the total number of days for the total number of recorded calls. Then it aggregates this data to the regional level. WRR then sends this final spreadsheet to the report generation group, which adds the columns that are required by the established report format, in order to load it into MS Access software. Qwest then queries the data for integrity, *e.g.*, to assure that there is no duplication or erroneously formatted data. Through this step, no performance data is excluded. All manual measures are then loaded into a single master Access database before being loaded into an Oracle database. It is from this data that the final report is produced.

2. Overall Summary

BI-1A is being measured correctly. The process and data for this measure has been traced and recalculated, as is described below.

A part of one exception report (E1012) noted that a title in the performance results report was not complete. This detail error has been corrected.

3. Analysis

Liberty's audit of this performance measure included:

- Conducting interviews of Qwest personnel
- Evaluating the responses to several requests for information
- Validating data transcription
- Reviewing the source system code
- Conducting independent recalculations
- Tracking data through the process.

Liberty interviewed Qwest personnel to ascertain whether the measurement was being performed correctly:

- CRIS/MCAS personnel were interviewed to gain an understanding of how the data is processed and by what means.
- PANS personnel were interviewed to learn how much of the process was automated and how much manual.
- WRR personnel were interviewed for information on how the received data is handled.
- Qwest IT personnel were interviewed to confirm details for current data sources and the schedule for automation of the measurement process.

Qwest provided responses to a number of data requests related to this performance measure. Liberty made these data requests to clarify points made in the interviews, and to gather documentation or data about processes or the data used to measure performance. Specifically requests were made to:

- Determine whether usage data for CLECs were processed the same as it was for Qwest.
- Learn when Qwest anticipated the switch from manual to automatic processing via the PANS system would be made and the schedule of activities involved.
- Obtain the specification documents for billing measure calculation by WRR, the program specification for extraction of data from CRIS to MCAS to WRR and the PANS interface specifications.
- Obtain the electronic files that contain data acquired by the RRS group and the spreadsheet files used or created by RRS relevant to all billing performance measures for the latest two months that are available.
- Obtain the data sent from MCAS to WRR.
- Obtain the spreadsheets produced by WRR for upload into Oracle.

As part of the data tracking and recalculation work, Liberty cross-referenced the hard-copy data provided by the source system with the data entered into the WRR spreadsheet. Liberty reviewed the source-system program code, in order to ensure that no data was erroneously removed or

added. Liberty recalculated the figures provided by Qwest. More specifically, Liberty undertook the following recalculation steps:

- Calculated the "Number of Records" by totaling the figures for each recorded time for each CLEC.
- Calculated the "Total Number of Days" by multiplying the "Number of Records" by "the Average Days". "The Average Days" are provided by the source system.
- Rolled up the figures into state, regional, and total CLEC results.

Liberty then compared these final figures against those in the final appended spreadsheet that is loaded into Access by the Report Generation group. Liberty did not find any discrepancies between the results of its work and those provided by Qwest.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure BI-1A to meet the audit-release requirements as of December 19, 2000.

b. Exceptions

One item in exception report E1012 pertained to BI-1A. It was a report labeling detail and it has been corrected.

c. Observations

There were no observation reports addressing BI-1A.

d. Conclusions

This performance measure accurately reports on the time to provide usage records for UNEs and resale.

Parts of Qwest's process for gathering the data and calculating performance results are performed manually. It is Liberty's understanding that Qwest intends to automate more of this process.

5. Recommendations

As the process for reporting BI-1A is automated, the ROC should determine whether a review should be conducted to ensure that accurate results continue to be reported.

B. BI-1B – Time to Provide Usage Records – Jointly Provided Switched Access

1. Introduction and Background

Performance Measure BI-1 provides a means to evaluate the timeliness with which Qwest provides recorded daily usage records to CLECs. BI-1B measures the percentage of recorded daily usage for jointly provided switched access provided within four business days. This interval is measured from the date of the recorded daily usage to the date the usage records are sent to CLECs. The standard is 95 percent within four business days. Qwest disaggregates reporting to the state level and reports at the CLEC aggregate and individual CLEC level.

Records are excluded from the calculation if the state field is not one of Qwest's 14 states and in cases where the CLEC requests other than daily usage transmission. Only the second of these two exclusions is specifically stated in the PID. However, Liberty found that for the months of April and May 2001, no records were excluded.

2. Overall Summary

There was one observation and no exceptions that applied to BI-1B. Qwest has satisfactorily resolved the issues raised in the observation report. The performance measure is ready for release.

3. Analysis

Until recently, Qwest's process for reporting results for BI-1B involved manually inserting data from billing reports into a spreadsheet, and then calculating the results for the state and individual CLEC. Liberty found problems in these manual calculations for the month of December, 2000, and reported the errors in Observation 1018. Liberty found additional problems with the January, 2001, results and supplemented that same observation report on April 1, 2001.

Qwest corrected the errors that Liberty found, but indicated that the permanent solution to the problems was automating the process for collection and manipulation of the data. Those changes have been implemented by Qwest. BI-1B is now like many other performance measures in that the raw data are stored in the PANS systems, and a SAS program (BI1B.sas) is used to collect the data each month in a "Detail" file, and process the records to get only valid jointly provided switched access records, and calculate the elapsed time from usage to providing the usage record to CLECs. Qwest reported results using this method starting with the April 2001 results.

Liberty used Qwest's files and recalculated results for the region, Washington, and Idaho for the month of April 2001, and for the region, Colorado, and Oregon for the month of May 2001. These calculations matched the results reported by Qwest.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure BI-1B ready for release as of June 29, 2001.

b. Exceptions

There were no exceptions related to measure BI-1B.

c. Observations

One Observation, 1018, pertained to BI-1B. It dealt with calculation errors that occurred when Qwest was calculating the results manually. Errors that were discovered in the audit were corrected. The automated process now used by Qwest will prevent these types of errors from occurring in the future.

d. Conclusions

BI-1B accurately reports the percentage of usage records provided within four business days for jointly provided switched access.

5. Recommendations

Liberty has no recommendation specifically related to this performance measure.

C. BI-2 – Invoices Delivered within 10 Days

1. Introduction and Background

This measure is intended to help evaluate the timeliness with which Qwest delivers industry-standard, electronically transmitted *(EDI)* bills to CLECs. (EDI consists of a series of standards for transmitting billing data electronically between companies in a structured data format.) It measures the percentage of those bills that Qwest delivers within 10 calendar days, measured by the number of days between the bill date and bill delivery. BI-2 excludes bills transmitted via paper, magnetic tape, CD-ROM or diskette. This performance measure requires disaggregation at the state level; the performance standard is parity-by-design.

On December 19, 2000, Liberty released BI-2, noting that Qwest intended to automate the process used to calculate this measure and change the process so that state-level reporting could be made. Qwest has now completed these changes and this release report supercedes the one issued in December.

The PANS databases acquire billing information from IABS (interexchange access billing system and CRIS (customer record information system) to calculate BI-2. IABS supplies billing information for unbundled dedicated interoffice transport, reciprocal compensation and frame relay resale. All other billing records, and by far the vast majority, come from CRIS. The program "iabs.sas" generates the BI-2 data and, using reference tables and date comparisons, identifies whether each billing record met the 10-day standard.

Liberty's initial audit of this performance measure included conducting several interviews of Qwest personnel, evaluating the responses to several requests for information, validating data transcription, reviewing the source system code, conducting independent recalculations, and

tracking of data through the process. Liberty cross-referenced the hard copy report containing the measurement details with the spreadsheet that is initially produced by WRR. Liberty then recalculated each step of the process. The initial recalculation identified that Liberty had been provided with an erroneous version of the WRR spreadsheet. Liberty's follow-up audit included additional interviews and requests for information and recalculation of performance measure results.

2. Overall Summary

Measure BI-2 is ready for release. The issue raised in Exception Report 1013, the lack of state-level reporting, has been resolved.

3. Analysis

During the audit of BI-2, Liberty noted several updates to the PID that were required to bring the definition up to date. These matters included notes about the availability of state-level reporting and reciprocal compensation billing, as well as the standard terminology about exclusions of records without essential data. Qwest made these changes in version 3.0 of the PID. Liberty noted that in the large number of billing records reviewed, none were excluded because of missing data or improper state designations.

Also during its review of the data for March 2001, Liberty noted that records from the IABS system had not been included in the results as required. During a work session and in a data request response, Qwest confirmed that the IABS results for March had been inadvertently omitted from the report for BI-2 because PANS did not get the IABS data until April 17 and the rest of the data had been acquired and used to produce results on April 8. Qwest implemented process changes to ensure that this type of problem does not occur in the future, not only for BI-2, but also for other measures.

Because the data for this measure includes both wholesale and retail information, the number of records used each month is very large. Liberty limited its recalculation to the states of Colorado and Wyoming and the month of April. This data set included over 42,000 billing records. In addition, Liberty's review included checks to ensure that Qwest's program was applied in the same way to other states and months. Liberty's recalculation matched the results reported by Qwest.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure BI-2 to meet audit-release requirements as of June 12, 2001.

b. Exceptions

Exception 1013 identified the lack of state-level reporting. Qwest's performance results now include those at the state level.

c. Observations

There were no observation reports related to BI-2.

d. Conclusions

BI-2 accurately evaluates the timeliness with which Qwest delivers industry standard electronically transmitted bills to CLECs.

5. Recommendations

One minor item to improve the clarity of reporting is that Qwest should label the reported results as "Qwest Retail/CLEC Aggregate" rather than "CLEC" in the monthly results report.

A matter that should be checked as part of continuing monitoring efforts on this and other performance measures is to make sure that system data dumps to PANS occur before Qwest draws data from PANS for monthly results reporting.

D. BI-3A – Billing Accuracy – Adjustments for Errors –UNEs and Resale

1. Introduction and Background

Performance measure BI-3A is intended to help evaluate the accuracy of Qwest's bills to CLECs. It measures the percentage of billed revenue that does not contain errors. The PID formula for this measure is simply the total billed revenue that did not contain errors divided by total billed revenue.

The standard for BI-3A is parity with Qwest retail. Therefore, Qwest also reports the total retail revenue billed without error as a percentage of total retail revenue. There are no exclusions of data for BI-3A; it is reported at a statewide level. The PID defines the amount adjusted off bills due to errors as the sum of all bill adjustments made in the reporting period that involve, either in part or in total, adjustment codes related to billing errors.

Early in the audit of this measure, Liberty discovered that the results being reported by Qwest included all billing adjustments, not just billing errors. This problem was documented in Observation 1004. In order to improve the process for reporting BI-3A, Qwest had to undertake a new effort that took into account various classifications of billing adjustments, and only include those that were billing errors. In discussions related to this matter, the ROC Steering Committee decided that, for the purposes of beginning any OSS testing related to BI-3A, it was acceptable to review the process that Qwest would put in place in its eastern region only, with the understanding that the other two regions would be improved soon thereafter. The Steering Committee also indicated that it wanted Qwest to have data for two months using the new process for the eastern region before the measure could be released for testing.

Qwest completed the process for capturing billing adjustment code information for the five states in its eastern region, and reported results using the new process starting with the months of

January and February, 2001. Liberty audited the new process, recalculated the results for the five states, and checked the results against those reported by Qwest. Liberty issued a release report for BI-3A eastern region on March 29, 2001.

Qwest completed the development of BI-3A for its central and western regions. Liberty audited the results of that development and confirmed that Qwest is now reporting accurate results for BI-3A for the entire Qwest region.

2. Overall Summary

BI-3A can be released. There are no outstanding exceptions or observations related to BI-3A.

3. Analysis

There are several ways that Qwest may record a billing adjustment. The primary and most common method is through the BOSS Billing Order Support System) interface. Through BOSS, users such as customer service representatives can make account adjustments and notations. The major types of adjustments created through BOSS are OC&C (other charges and credits), uncollectibles, monthly service, itemized calls, service & equipment, taxes, and directory assistance. Of these major types, OC&C and itemized calls are the ones likely to contain billing errors. These adjustments make records in the CRIS (customer record information system) called 1236 record types. The other ways to create adjustments are through a mainframe access system, called manual ISPF, and through the CRIS system directly creating 0571 record types. Finally, for wholesale revenues related to unbundled dedicated transport and frame relay resale, IABS (interexchange access billing system) may create adjustments.

The logic that is used to evaluate CRIS 1236 records involves first looking to see if the adjustment is classified as uncollectible. Those records are not considered further for billing errors. Qwest classifies all adjustments as either "uncollectible" or "correct charges." An adjustment is classified as uncollectible when Qwest considers that it has earned the revenue but cannot or will not collect it. Qwest's guidance to personnel making such adjustments instruct that an uncollectible adjustment occurs when (a) the service rendered was adequate and that the charge is correct, (b) the service was in accordance with any applicable tariffs, and (c) the customer is unwilling to pay because the customer believes that the record is incorrect and that the company should assume responsibility under the circumstances. The guidance gives many practical examples of when an adjustment should be considered uncollectible. Liberty concluded that Qwest's process of excluding the uncollectible adjustments is appropriate.

Adjustments are classified as "correct charges" when all information that can be obtained from company records indicates that the service was defective or not fully provided, the charges for service were billed or computed incorrectly, or the charges should have been billed to another customer. Qwest's guidance to personnel making such adjustments include definitions and examples of circumstances in which this classification is used. Qwest's logic for determining billing errors in 1236 adjustments for BI-3A takes adjustments that have been classified as "correct charges" and determines first whether an "Alpha Adjustment Reason Codes" has been entered. There are many possible codes. Liberty reviewed and agreed with Qwest's logic for the determination of whether a particular code should be included as a billing error. If there is no Alpha Adjustment Code, the logic checks to see if a "Qualifier Code" has been used. Again, Qwest classified and Liberty review some of the Qualifier Codes that are used to designate

billing errors. When neither of these codes have entries, which was often the case in the wholesale records that Liberty reviewed, the adjustment is considered a billing error.

Similarly, the adjustments for 0571 records check the qualifier code to determine whether the adjustment should be considered a billing error, and the IABS records for adjustments are checked using another set of adjustment reason codes. When there the codes are not clear about whether an adjustment is a billing error, Qwest counts it as a billing error.

Part of Liberty's audit included a review of the query logic that is used to pull total billed revenue from the corporate data warehouse (CDW). Qwest sums the absolute value of revenue amounts in a similar fashion for both wholesale and retail revenue records. Wholesale records are classified by CLEC ID, while all retail records contain the USWC supplier identification.

Initially, for the eastern region and wholesale billing adjustments, Qwest captured the data in a spreadsheet by individual adjustment, by state, by CLEC, and by whether the adjustment was from CRIS or IABS. Thus all the required reporting disaggregations can be made. Liberty reviewed the spreadsheets generated for November and December, 2000, and January and February 2001. Liberty recalculated these results and compared the results to those reported by Qwest for January and February for the eastern region states: Iowa, Minnesota, North Dakota, Nebraska, and South Dakota. These comparisons proved satisfactory.

Qwest then implemented similar processes in its other two regions and automated the process such that the data required are loaded to the PANS system, and a Regulatory Reporting System program extracts the required data and compute results automatically.

Liberty audited the results of the completed, automated process, including the recalculation of wholesale results for Idaho and Oregon. These recalculations matched the results reported by Qwest for the month of May, 2001. Liberty analyzed the record exclusions made to the data set drawn from PANS. The only exclusion type of significant relative size was that for invalid products. This exclusion is appropriate since the measure only relates to UNEs and resale.

4. Findings and Conclusions

a. Performance Measure Release Date

BI-3A was considered as ready-for-release for Qwest's eastern CRIS region as of March 29, 2001. BI-3A was considered ready-for-release in its entirety on June 29, 2001.

b. Exceptions

Exception 1012 applied to BI-3A in part. This exception noted several anomalies in the performance results for several billing measures. Qwest corrected these problems and Liberty closed the exception on February 1, 2001.

c. Observations

As noted in the introduction, Observation 1004 reported that Qwest had been including all adjustments, not just billing errors, in its reporting of BI-3A. With the changes described above, Qwest has made a considerable improvement in focusing on billing errors.

As part of Liberty's review to determine if Observation 1004 could be closed, however, another problem was discovered with Qwest's prior method for reporting BI-3A. Qwest used a source for total revenue that included affiliates, such as Qwest Wireless and Choice TV, and long distance carrier revenues that should not be part of the BI-3A measure. Even though the amount used for billing errors (all adjustments) was too high, so was the total revenue figure. In some cases, the percentage of correctly billed revenues decreased after reducing the amount considered to be billing errors. Therefore, Liberty concluded that Qwest's historical reporting of BI-3A was not valid. In its report that first included the May 2001 results, Qwest corrected this by only reporting April and May.

d. Conclusions

BI-3A presents a reasonably accurate measure of billing accuracy for UNEs and Resale.

The accuracy of BI-3A could be improved. Liberty found that the method developed by Qwest is likely the most accurate given the data that is currently available. However, Qwest acknowledges that enhancements could be made in the future to increase the data quality. For example, there remains some cases in which adjustments need to be considered billing errors simply because there are no definitive indications otherwise.

5. Recommendations

As the process used for BI-3A has just been completed and there could be further refinements in the classification of billing adjustments, this measure is a candidate for future auditing. However, Liberty has no specific recommendations for BI-3A.

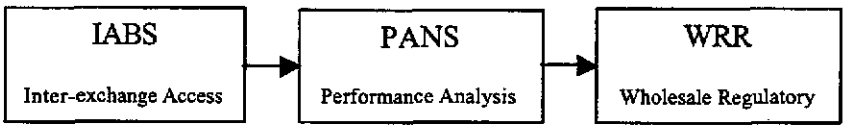
E. BI-3B-Billing Accuracy: Adjustments for Errors – Reciprocal Compensation Minutes-of-Use

1. Introduction and Background

Measure BI-3B helps to evaluate the accuracy with which Qwest bills CLECs for reciprocal compensation minutes-of-use *(RC MOU)*. It reports the percentage of billed revenue adjusted due to errors.

The standard for measure BI-3B standard is 95 percent non-erroneous RC MOU billing. It is disaggregated by state level.

The following diagram shows how data are processed for measure BI-3B.



IABS forwards an invoice file containing the data for both UDIT and RC MOU compensation. The data are split up and UDIT is used as part of the BI-3A calculation. The RC MOU billing data are then processed and sent to PANS and then to WRR. The figures are manually entered

into a spreadsheet and the calculation is performed. The final master spreadsheet is then loaded into Oracle software from which the final report is directly produced.

2. Overall Summary

BI-3B is being measured correctly. The process and data for this measure have been traced and recalculated, as is described below.

Two observations were written against this performance measure: 1004 and 1016. Observation 1004 related to non-error adjustments (such as balance transfers) being included erroneously. Observation 1016 reported on calculation errors. These observations have been satisfactorily resolved.

Exception 1012 noted several minor anomalies in the performance reports and missing data for June and July. These anomalies have been corrected.

3. Analysis

Liberty's audit of this performance measure included:

- Conducting interviews of Qwest personnel
- Evaluating the responses to several requests for information
- Validating data transcription
- Reviewing the source system code
- Conducting independent recalculations
- Tracking data through the process.

Liberty interviewed Qwest personnel to ascertain whether the measurement was being performed correctly:

- PANS personnel were interviewed to deduce how much of the process was automated and how much was manual and by what methods the automation would be performed.
- Wholesale Regulatory Reporting (WRR) personnel were interviewed for information on how the received data is handled by WRR. A Qwest IT person was interviewed to confirm details for current data sources and the schedule for automation of the measurement process.
- The IABS team was interviewed for information regarding the processing of data within IABS and the transfer to CAIMS.
- CAIMS was interviewed for an understanding of the CAIMS interface to WRR.
- In order to check the process for calculation Liberty witnessed a demonstration by WRR of the processing of the source data. The demonstration showed the steps made in order to produce the final master spreadsheet for uploading.

Qwest provided responses to a number of data requests related to this performance measure. Liberty made these data requests to clarify points made in the interviews, and to gather documentation or data about processes or the data used to measure performance. Specifically requests were made to:

- Discuss the schedule for automation from manual to automatic via the PANS system would be made.
- Receive the specification documents for billing measure calculation by WRR, the program specification for extraction of data from CRIS to MCAS to WRR, and the PANS interface specifications.
- Obtain the electronic files that contain data acquired by the RRS group and the spreadsheet files used or created by RRS relevant to all billing performance measures for the latest two months that are available.
- Get the spreadsheets produced by WRR for upload into Oracle.
- Get document containing the list of what constitutes an adjustment error within IABS.

As part of the data tracking and recalculation work, Liberty cross-referenced the hard-copy data provided by the source system with the data entered into the WRR spreadsheet. Liberty reviewed the source-system program code, in order to ensure that no data were erroneously removed or added. Liberty recalculated the figures provided by Qwest. More specifically, Liberty undertook the following recalculation steps:

- Sorted and removed superfluous data
- Calculated the totals for each individual CLEC
- Calculated the state and regional totals for the measure.

4. Findings and Conclusions

a. Actual PID Release Date

Measure BI-3B can be considered as ready for release on February 19, 2001.

b. Exceptions

One exception was raised against BI-3B (E1012). This highlighted a data error and anomalies within the graphical representation of the final report. Both anomalies have been corrected.

c. Observations

Two observations were raised against his measure, O1004 and O1016. The observation 1004 related to non-error adjustments (such as balance transfers) being included erroneously. Qwest made corrections so that only errors would be included in the measure's results. Liberty's recalculations confirmed that non-erred adjustments were excluded. Observation 1016 related to errors in the process of calculating the performance measure. After several corrections, Qwest was able to provide Liberty with data that proved the reported results.

d. Conclusions

This performance measure accurately evaluates the accuracy with which Qwest reflects adjustments for errors with regard to RC MOU.

Parts of Qwest's process for gathering the data and calculating performance results are performed manually. Liberty's recalculation efforts proved that Qwest's process is prone to errors, primarily as a result of data transcription and manual spreadsheet manipulations. Even in its final recalculation, Liberty found one immaterial error in Qwest's work. It is Liberty's understanding that Qwest intends to automate more of this process.

5. Recommendations

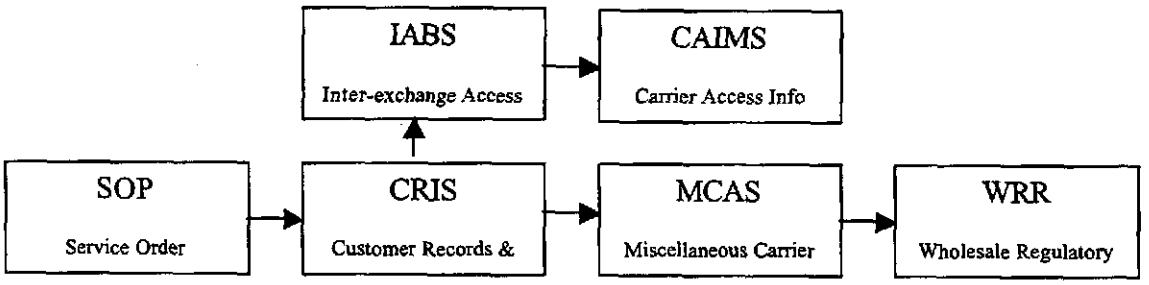
The process used to calculate BI-3B is prone to error. As long as the process retains significant manual steps, Qwest should implement additional quality control checks prior to reporting its results. When the process for reporting BI-3B is more fully automated, the ROC should consider having a review conducted to ensure the accuracy of the performance results.

F. BI-4A – Billing Completeness – UNEs & Resale

1. Introduction and Background

Measure BI-4A helps evaluate the completeness with which Qwest reflects non-recurring and recurring charges associated with completed service orders on the bills.

The following diagram shows how the data are processed for BI-4A.



When a Co-Provider submits a Local Service Request *(LSR)*, Qwest generates one or more service orders, depending on the requested activity or service, to provision and bill the request. Once Qwest completes the requested work for a particular LSR, Qwest notifies the Co-Provider and sends the service order(s) to the billing system. The CRIS billing system receives completed service orders from each of the three regional service order processing systems (SOPS) daily (business days excluding Qwest holidays). Once CRIS receives the orders, it performs the following activities:

- Rates the items on the orders on the basis of tariff information or data from Co-Provider contracts.
- Updates the customer's account in the customer databases to ensure that all customer information is current. CRIS also uses the customer account to ensure end-user usage belonging to the Co-Provider is directed to the correct account.

Once processed, the data are passed onto the MCAS system where they are stored before being rolled up and passed onto WRR in hard copy.

For UDIT and Reciprocal Compensation MOU the data are passed onto and processed within IABS. The data, in the form of invoice files, are then forwarded to the CAIMS data warehouse. A spreadsheet is then sent to Regulatory Reporting who enter the details manually into a spreadsheet.

WRR recalculates the CLEC state figures and compares these against the aggregated figures sent by IABS group. WRR then aggregates these figures into regional results and passes the final master spreadsheet onto the report generation group. They load the report into access and add various columns required by the report. This data are then queried for integrity, *i.e.*, no duplication or erroneously formatted data exists. All manual measures are then loaded into a single master Access database before being loaded into an Oracle database. It is from this data that the final report is produced.

2. Overall Summary

BI-4A is being measured correctly. The process and data for this measure have been traced and recalculated, as described below.

This performance measure had two exceptions reported against it. Exception 1012 noted that the results had not been disaggregated for certain months. Exception 1021 noted various data errors. Both of these exceptions were resolved.

3. Analysis

Liberty's audit of this performance measure included:

- Conducting interviews of Qwest personnel
- Evaluating the responses to several requests for information
- Validating data transcription
- Reviewing the source system code
- Conducting independent recalculations
- Tracking data through the process.

Liberty interviewed Qwest personnel to ascertain whether the measurement was being performed correctly, including personnel from the following groups:

- CRIS/MCAS – to gain an understanding of how the data are processed and by what means.
- PANS – to determine how much of the process was automated and how much was manual, and by what methods the automation was performed.
- Wholesale Retail Reporting – for information on how the received data are handled.
- Qwest IT – to confirm details for current data sources and the schedule for automation of the measurement process.
- IABS team – for information regarding the processing of data within IABS and the transfer to CAIMS.
- CAIMS – for an understanding of the CAIMS interface to WRR.
- Liberty also witnessed a demonstration of the calculation by the WRR.

Qwest provided responses to a number of data requests related to this performance measure. Liberty made these data requests to clarify points made in the interviews, and to gather documentation or data about processes or the data used to measure performance. Specifically requests were made to get:

- the schedule for automation from manual to automatic via the PANS system would be made.
- the specification documents for billing measure calculation by WRR, the program specification for extraction of data from CRIS to MCAS to WRR, and the PANS interface specifications.
- the electronic files that contain data acquired by the RRS group and the spreadsheet files used or created by RRS relevant to all billing performance measures for the latest two months that are available.
- the data sent from MCAS to WRR.
- the spreadsheets produced by WRR for upload into Oracle.
- a clarification that recurring charges are included in the BI-4A calculation.
- a clarification of the figures reported in the June report for BI-4A.
- the Access Master database file for upload into Oracle.

As part of the data tracking and recalculation work, Liberty cross-referenced the hard-copy data provided by the source system with the data entered into WRR's spreadsheet. Liberty reviewed the source-system program code to ensure that no data were erroneously removed or added. Liberty recalculated the figures provided by Qwest. More specifically, Liberty undertook the following recalculation steps:

- Rolled up the source data
- Calculated the denominator by dividing the "LATE S/O" by the "% of T S/O" for each CLEC

- Determined the numerator by subtracting the "LATE S/O" number from the denominator for each CLEC
- Calculated the "% ONTIME Result" by dividing the numerator by the denominator for each CLEC.

In the course of rolling up from individual CLECs to state, Liberty identified a number of anomalies with the data. Liberty issued two exceptions (E1012 and E1021) to identify these anomalies.

Some minor errors were found in the process of calculating the UDIT result. However these affected the result by less than 0.01 percent and were therefore not considered significant.

Liberty did not find any discrepancies between the results of its work and those provided by Qwest.

4. Findings and Conclusions

a. Actual PID Release Date

BI-4A can be considered as ready for release on January 31, 2001.

b. Exceptions

Liberty raised two exceptions on this measure during this audit.

Exception 1012 stated that data had not been disaggregated for April and May. This was due to a historical limitation of the reporting system. All future months have subsequently been disaggregated.

Exception 1021 identified a multitude of data errors that were due to incorrect data being passed to Liberty. Subsequent evaluation of the correct data files has proved correct.

c. Observations

No observations were raised with regard to this measure.

d. Conclusions

This performance measure accurately measures the completeness with which Qwest reflects non-recurring and recurring charges associated with completed service orders on the bills correctly.

Parts of Qwest's process for gathering the data and calculating performance results are performed manually. It is Liberty's understanding that Qwest intends to automate more of this process.

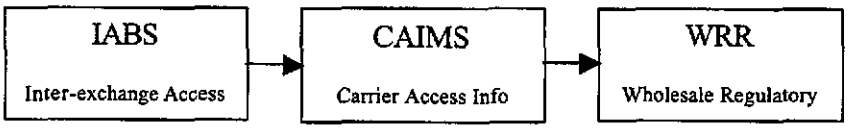
5. Recommendations

As the process for reporting BI-4A is automated, the TAG should determine whether a review should be conducted to ensure that accurate results continue to be reported.

G. BI-4B - Billing Completeness for Reciprocal Compensation

1. Introduction and Background

Measure BI-4B addresses the completeness with which Qwest bills for service to CLECs reflect the revenue for those local minutes of use (MOU) that are associated with CLEC local traffic over Qwests network. The following diagram illustrates the path taken by data that apply to the measurements made under BI-4B.



The focus of Performance Measure BI-4B is reciprocal compensation. IABS processes, among much other information, the MOU data that relate to reciprocal compensation. Invoice files that contain the data flow from IABS to the CAIMS data warehouse. The data is designed to include all CLECs that have reciprocal compensation MOU and that have an established Billing Account Number *(BAN)*. Qwest uses an IABS report to update status spreadsheets, which note any changes to the status of BANs or contract types as they relate to this measure. IABS verifies the changes that have been made, and it checks for subsequent updates, which are included as part of the reference data for the final spreadsheet that is used to calculate performance results.

Qwest extracts measurement data from the CAIMS system via the FOCUS Recip 271 report. This report returns all L04 Billing Account Numbers, whether they involve reciprocal compensation, Bill-and-Keep, or any other contract type. Qwest manually identifies the contracts that involved reciprocal compensation MOU from this report, and enters the data associated with them, again manually, into the final spreadsheet. The spreadsheet provides performance results by state and by CLEC and for Qwest. The spreadsheet is then forwarded to WRR, which creates a single regional master spreadsheet that displays performance results.

This final spreadsheet is forwarded to the report generation group. This group adds various columns that are necessary to meet the monthly-results report-format requirements, in order to load the spreadsheet into MS Access. Qwest personnel they query this data to test its integrity, *e.g.*, whether duplication or erroneously formatted data exist. Through this point in the process, Qwest excludes no data from the performance measurement process. After performing the integrity queries, Qwest loads the manually derived measures into a single master Access database. The data is then loaded into an Oracle database, which Qwest uses to produce the final monthly report for this measure.

2. Overall Summary

BI-4B is reported accurately. All audit issues associated with this measure have been resolved.

3. Analysis

Liberty undertook the following steps its examination of Performance Measure BI-4B:

- A number of interviews were conducted
- The responses to data requests were examined
- The status spreadsheet was validated in the IABS & TAXI systems
- The status spreadsheet was compared against the final spreadsheet that was sent along for use in results calculation
- The CAIMS report was validated against the data sent in the final spreadsheet
- The logic of the CAIMS report was reviewed
- The calculation performed by WRR was recalculated independently by Liberty
- The data sent by WRR to the report generation group was cross-referenced for validity.

Each of these steps is described in more detail below. Liberty interviewed the following in order to ascertain whether the measurement was being performed correctly:

- CRIS/MCAS experts, in order to gain an understanding of how the data is processed and by what means
- PANS experts, in order to determine how much of the process was automated, how much was manual, and by what methods the automation would be performed
- Wholesale Regulatory Reporting personnel, in order to secure information on how WRR handles the data that it receives
- Qwest IT personnel, in order to confirm details for current data sources and the schedule for automation of the measurement process
- The IABS team, in order to gain information regarding the processing of data within IABS and the transfer to CAIMS
- CAIMS experts, in order to develop an understanding of the CAIMS interface to WRR.

Liberty made a number of data requests. The data requests were made to clarify points made in the interviews and to gather documentation or data. Specifically requests were made to identify:

- When the schedule for changing from manual to automatic data extraction from the PANS system would be made
- The specification documents for billing measure calculation by WRR, the program specification for extraction of data from CRIS to MCAS to WRR and the PANS interface specifications
- The electronic files that contain data acquired by the RRS group and the spreadsheet files used or created by RRS relevant to all billing performance measures for the latest two months available
- The data sent from CAIMS to WRR
- The spreadsheets produced by WRR for upload into Access

- The Access Master database file for upload into Oracle
- A copy of the program code for the FOCUS Recip 271 report.

Liberty tested the status spreadsheet by sampling different data types and cross checking those set forth in the IABS & TAXI systems against the reported values in the status spreadsheet. Specifically Liberty examined the following cases:

- CLECs with no BAN established
- CLECs with new BANs established in the last month
- CLECs Contract types, in order to ensure that all were for Reciprocal Compensation.

Liberty then compared the status spreadsheet against the final spreadsheet, both of which had been updated for the September month end. The comparisons showed no inconsistencies between the two spreadsheets.

CAIMS produces the FOCUS Recip 271 report. This provides the numerator, denominator, and result for each CLEC by state and for Qwest. The company runs this report, which attributes the values to the correct CLEC or Qwest in the final spreadsheet. Liberty independently cross-referenced these values, and verified that they were correct for the September data. Liberty also checked the program code logic for the FOCUS Recip 271 report, in order to ensure that it was accurately capturing the correct data.

After the data comes to WRR, the group aggregates it to the state and regional levels. This aggregation produces one result per state, one per region, and a final aggregated result for all CLECs and Qwest. Liberty used the original data for May and June to recalculate results. This exercise produced the same results that Qwest reported.

Liberty cross-referenced the final spreadsheet entries with the data that is loaded by the report generation group into Oracle.

Each of these validation and recalculation processes replicated Qwest's results for each step.

4. Findings and Conclusions

a. PID Release Date

Liberty considered measure BI-4B to meet the audit-release requirements as of November 13, 2000.

b. Exceptions

A portion of Exception 1012 concerns Performance Measure (part of) BI-4B. The relevant portion of that exception, which primarily addresses other performance measures, was that the title for the table "Billing Completeness (Percent) Reciprocal Compensation" should make reference to "BI-4B", not to "BI-4." This change, which has been made in Qwest's most recent

monthly performance results (dated October 27, 2000), did not affect the accuracy of results measurement.

c. Observations

There have been no observations about this performance measure.

d. Conclusions

Measure BI-4B correctly evaluates the completeness with which Qwest reflects the revenue for local minutes of use (MOU) associated with CLEC local traffic over Qwests network on the bills. Qwest currently conducts its measurement process with the use of manual processes. There are plans for automation. Liberty has audited only the current manual processes; it has made no test of the operation of he automated processes, which were not in use when this part of the audit was completed.

5. Recommendations

Qwest's measurements under Performance Measure BI-4B can be considered sufficiently reliable for release in connection with any applicable OSS testing, subject to one qualification. The planned automation date for PID BI-4B was December 31, 2000. Measurements under this new process can be expected to appear in the performance results report that is issued in March.

VII. DB – Database Updates

A. DB-1A – Time to Update E911 Database

1. Introduction and Background

DB-1A measures the time to complete updates to the E911 database. It is reported as combined results for Qwest retail and CLEC aggregate, is a parity-by-design measure, and is reported as an average number of minutes on a state and regional level.

SCC has been contracted by Qwest to manage the E911 database located at their premises in Boulder, Colorado. Each day, SCC creates and executes a file of E911updates that have been received from Qwest and the CLECs.

The updates from Qwest are in the form of a report exported from the Service Order Processor *(SOP)* systems and contain both Qwest and Reseller service orders. The service orders that require E911 updates are identified and added to the E911 update file. CLECs send their E911 updates electronically via FTP and these are added to the E911 update file. Records that return an error during the E911 database updates are copied to a table of errors in the E911 database.

At the end of the reporting period SCC queries the E911 database to produce a performance report in Microsoft Word that is emailed to Wholesale Regulatory Reporting *(WRR)* for inclusion in the performance results.

The SCC report includes the following data:

- No of records processed
- No of records in error
- Percentage of records in error
- Average processing time.

2. Overall Summary

No exceptions or observations for the measure DB-1A were identified during Liberty's process analysis activities. DB-1A is ready for release.

3. Analysis

As part of the audit of the DB-1A measure, Liberty interviewed an E911 database subject matter expert and representatives from WRR to confirm that the measurement is being performed correctly. The SME was asked to describe the E911 database update process and provide copies of the SCC report that is sent to WRR. A review of the E911 database was conducted as described in the PMA work plan.

The time to update the database is captured automatically by the database system. There are no physical items of data to track through the database update process. Data tracking is therefore not applicable to this measure.

WRR personnel were asked to identify the values used in the SCC report to calculate the results and to describe the processing steps that are completed. In order to verify the calculation process, Liberty confirmed that the Qwest performance results corresponded to the values in the SCC reports by following the WRR prescribed process.

Liberty confirmed that Qwest is reporting the correct result for the measure DB-1A by examining the SCC report for June and July, 2000, and January, 2001, and recalculating the performance result.

4. Findings and Conclusions

a. Performance Measure Release Date

DB-1A wa considered as ready-for-release as of March 23rd, 2001.

b. Exceptions

No exceptions have been raised with regard to the DB-1A measure.

c. Observations

No observations have been raised with regard to the DB-1A measure.

d. Conclusions

Measure DB-1A accurately reports the average time to update the E911 databases.

5. Recommendations

Liberty has no recommendations related specifically to DB-1A.

B. DB-1B – Time to Update LIDB Database

1. Introduction and Background

DB-IB measures the time to complete updates to the LIDB (line identification) databases. It is reported as combined results for Qwest retail and CLEC aggregate, is a parity-by-design measure, and is reported as an average number of seconds on a regional level.

CLEC database updates are performed mechanically via EDI. Qwest and Reseller database updates are mechanical via the Service Order Processor Interface (SOPI). There are two LIDB databases (LIDB 0 and LIDB 1) offering 100 percent redundancy. Records that return an error during a LIDB database update are copied to a table of errors in the LIDB database.

At the end of the reporting period, the LIDB database is queried to produce a performance report in Microsoft Excel that is emailed to Wholesale Regulatory Reporting *(WRR)* for inclusion in the performance results.

The LIDB report includes the following data:

- Time for each LIDB database update
- Total number of LIDB updates (calculated)
- Total time for all LIDB updates (calculated)
- Average time for a LIDB update (calculated).

The data is reported for each of the LIDB databases (LIDB 0 and LIDB 1) and the reported result is the average of the LIDB 0 and LIDB 1 database update times.

2. Overall Summary

No exceptions or observations for the measure DB-1B were identified during Liberty's audit activities. DB-1B is ready for release.

3. Analysis

As part of the audit of the DB-1B measure, Liberty interviewed a LIDB database subject matter expert and representatives from WRR to confirm that the measurement is being performed correctly. The SME was asked to describe the LIDB database update process and provide copies of the LIDB report that is sent to WRR. A review of the LIDB database was conducted as described in the PMA work plan.

The time to update the database is captured automatically by the database system. There are no physical items of data to track through the database update process. Data tracking is therefore not applicable to this measure.

WRR personnel were asked to identify the values used in the LIDB report to calculate the results and to describe the processing steps that are completed. In order to verify the calculation process, Liberty confirmed that the Qwest performance result corresponded to the values in the LIDB report by following the WRR prescribed process.

Liberty has confirmed that WRR are reporting the correct result for the measure DB-1B by examining the LIDB report for June and July, 2000, and January, 2001, and recalculating the performance result.

4. Findings and Conclusions

a. Performance Measure Release Date

DB-1B was considered as ready-for-release as of March 23rd, 2001.

b. Exceptions

No exceptions have been raised with regard to the DB-1B measure.

c. Observations

No observations have been raised with regard to the DB-1B measure.

d. Conclusions

Measure DB-1B accurately reports the average time to update the LIDB databases.

5. Recommendations

Liberty has no recommendations related specifically to DB-1B.

C. DB-1C – Time to Update Directory Listings Database

1. Introduction and Background

DB-1C measures the time to complete updates to the Directory Listings database. It has no exclusions, and is to provide parity by design. Disaggregation reporting is at the sub-region applicable to the state level. This measure has been split into 2 parts DB-1C-1, for electronically processed updates, and DB-1C-2, for manually processed updates.

Results for DB-1C-1 have been reported for months starting in April 2000. The results for DB-1C-2 have been reported for months starting in November 2000. Results are reported in average number of seconds for Qwest and CLEC aggregate combined.

The majority of CLEC database updates are entered manually by personnel in the Listings Operations Office (LOO) in Portland. Only one CLEC has the ability to mechanically update the database via EDI. Qwest and Reseller database updates are mechanical via a SOP interface.

Records that return an error during the Directory Listings database updates are copied to a table of errors in the Directory Listings database. At the end of the reporting period, the Directory Listings database is queried to produce a performance report that is faxed to Wholesale Regulatory Reporting *(WRR)* for inclusion in the performance results.

The Directory Listings report includes the following data:

- Total update time
- Total number of updates
- Average update time.

2. Overall Summary

DB-1C is ready for release. There are no outstanding exceptions or observations related these measures.

3. Analysis

The time to update the database is captured automatically by the database system. There are no physical items of data to track through the database update process. Data tracking is therefore not applicable to this measure.

Exception 1005 reported that the DB-1C measure was not including all database updates and did not provide parity by design. Qwest proposed and the TAG approved a change to the PID that created the sub-measures DB-1C-1 DB-1C-2. This corrected the issues noted in the exception.

As part of the audit of the DB-1C measure, Liberty interviewed a Directory Listings database subject matter expert and representatives from WRR to confirm that the measurement is being performed correctly. Qwest described the Directory Listings database update process and provided copies of the Directory Listings report that is sent to WRR. A review of the Directory Listings database was conducted as described in the PMA work plan.

In order to verify the calculation process, Liberty validated that the Qwest performance results corresponded to the values in the Directory Listings reports by recalculating the performance results. Liberty has confirmed that WRR reported the correct result for the measure DB-1C1 and DB-1C2 by examining the Directory Listings report for June and July, 2000, and January, 2001, and recalculating the performance result.

4. Findings and Conclusions

a. Performance Measure Release Date

DB-1C was considered as ready-for-release as of March 23rd, 2001.

b. Exceptions

In response to Exception 1005, 1006, 1019, 1031 and 1032 Qwest revised its database update measures. All except E1005 were directly related to measure DB-2. These updated measures were validated and recalculated using the January 2001 data.

c. Observations

No observations have been raised with regard to the DB-1C measure.

d. Conclusions

Liberty concludes that the measure DB-1C accurately calculates the average time to update the Directory Listings databases and is being reported correctly.

5. Recommendations

Liberty has no recommendations related specifically to DB-1C.

D. DB-2C Accurate Directory Listings Database Updates

1. Introduction and Background

DB-2C measures the percentage of directory listings database updates completed without error. Records are excluded that have invalid start or stop dates or times; the measure is to provide parity by design. Disaggregation reporting is at the multi-state, sub-region level. DB-2C has been split into DB-2C-1 (electronically processed updates) and DB-2C-2 (manually processed updates).

The March 2001 performance measure report included this measure with results for April 2000 through to February 2001for DB-2C-1, and for November 2000 to February 2001 for DB-2C-2. The result is documented as a Qwest / CLEC aggregate result.

The PID describes DB-2C as measuring the percentage of database updates completed without errors in the reporting period. It includes all database updates as specified under Disaggregation Reporting completed during the reporting period.

The majority of CLEC database updates are entered manually by personnel in the Listings Operations Office *(LOO)* in Portland. Only one CLEC has the ability to mechanically update the database via EDI. Qwest and Reseller database updates are mechanical via a SOP interface.

Records that return an error during the directory listings database updates are copied to a table of errors in the directory listings database.

At the end of the reporting period, the directory listings database is queried to produce a performance report that is faxed to Wholesale Regulatory Reporting *(WRR)* for inclusion in the performance results. That reports includes the total number of updates and the total number of listings updates without errors.

2. Overall Summary

DB-2C can be released for OSS testing. There are no outstanding exceptions or observations related these measures.

3. Analysis

The number of errors during updates to the database is captured automatically by the database system. There are no physical items of data to track through the database update process. Data tracking is therefore not applicable to this measure.

During Liberty's audit it was determined that DB-2C was not being calculated as described in the PID because all database updates were not included. Also, during its recalculation efforts, Liberty found that, for the measure DB-2C-1, the "undetermined" records where not being included in the calculation. Subsequently those were added and recalculated for the pertinent months and the results verified by this audit.

As part of the audit of the DB-2C measure, Liberty interviewed a directory listings database subject matter expert and representatives from WRR to confirm that the measurement was being

performed correctly. Topics included a description of the directory listings database update process and the report that is sent to WRR. A review of the directory listings database was conducted as described in the PMA work plan.

In order to verify the calculation process, Liberty examined the Qwest performance results and the corresponding values in the directory listings reports by recalculating the performance results. Liberty recalculated results for several months; Qwest's results were finally replicated for the month of January 2001.

4. Findings and Conclusions

a. Performance Measure Release Date

DB-2C was considered as ready-for-release as of April 2, 2001.

b. Exceptions

Exception 1032 noted that Qwest had been reporting only the CLEC aggregate (reseller and facilities-based CLECs) while labeling it as a Qwest/CLEC aggregate number. Qwest corrected that error. In response to Exceptions 1006, 1019, and 1031, Qwest revised the PID for DB-1 and DB-2.

c. Observations

No observations have been raised with regard to the DB-2C measure.

d. Conclusions

DB-2C evaluates the accuracy of database updates completed without error correctly.

5. Recommendations

Liberty has no recommendations related specifically to DB-2C.

VIII. Directory Assistance and Operator Services

A. DA-1 – Speed of Answer – Directory Assistance

1. Introduction and Background

DA-1 is designed to measure the average speed of answer of calls for directory assistance. Directory Assistance services are important to customers, and speed of answer is a key measure of service quality. Customers calling directory assistance can obtain the telephone number of any telephone subscriber contained in the directory assistance database. This performance measure has no product reporting. The only exclusion is for abandoned calls.

The standard for this performance measure is parity by design. Consistent with that standard, Qwest reports results on a combined retail/wholesale basis. Qwest has stated that its directory assistance function is nondiscriminatory, and that calls are answered on a first-come, first-served basis. For example, Qwest has stated that:

> *The design of U S WEST's directory assistance service platform assures the nondiscriminatory treatment of CLECs. U S WEST's directory assistance platform has a single queue design, and calls enter the queue based on the order in which the calls reached the directory assistance platform. Because technically, calls may only be answered from within a queue based on the order in which they enter the queue, it is not possible to discriminate between calls under this design.*

The formula in the ROC 271 Working PID Version 2.0 for the DA-1 performance measure is:

> *Ó[(Date and time of call answer) – (Date and time of first ring)]/(Total calls answered by center)*

Qwest does not actually calculate results under the above formula. During interviews with Qwest personnel, Liberty learned that, every ten seconds, the Qwest switches count the actual number of calls waiting in queue to be answered. Liberty will refer to these calls as "calls scanned." Qwest uses the data obtained from these counts to calculate the DA-1 performance results. This calculation multiplies the number of calls scanned (*i.e.*, the number of calls in queue at the end of each 10-second period when the count was taken) by ten seconds. Qwest then divides the result by the total number of calls handled during the period, (this number is also recorded by the switches). Mathematically, the formula that Qwest actually uses is:

> Average speed of answer ≈ (Total calls in queue) x 10 ÷ (Total calls handled)

The application of this formula produces an estimate of the average speed of answer (in seconds) for directory assistance services during the period. The accuracy of the estimate depends upon the degree to which the number of calls scanned constitutes a good approximation of the average number of calls in queue during the period. Given that calls are scanned every 10 seconds throughout every day, the approximation is likely to be quite good.

2. Overall Summary

There have been no exceptions or observations issued regarding this performance measure. The performance measure is ready for release as of this date.

3. Analysis

Liberty conducted interviews to learn about the performance result calculation process for DA-1. Liberty learned that the switches themselves, in addition to counting the number of calls in queue every 10 seconds, also record that data and the number of calls handled. A variety of reports contain these source data. Of particular relevance here are the Daily Team Session Reports, which show both the actual number of calls handled and the number of calls that were counted in queue. These reports show these data either for each of the four six-hour periods in the day or for every 15-minute period in the day. The Office Session Reports provide calls-handled information for each 15-minute interval throughout the day.

Liberty requested the Team and Office Session reports for the month of July 2000. The reports are produced for three areas, East, Central and West. Liberty compared some of the Office Session reports to their respective Team Session reports. This verified that the totals were the same. Liberty then summed the daily data from the Team Session Reports for all three areas, performed the division to obtain average speed of answer, and compared the results to those published by Qwest. The following table contains those results:

Comparison of Liberty and Qwest
DA-1 Results for July 2000
(results measured in seconds)

Area	Qwest	Liberty
East	7.85	7.853877
Central	8.03	8.016548
West	7.93	7.930313
Region	7.94	7.9388212

After rounding to two decimal places, Liberty's results agreed with Qwest's in every instance except for the Central area, where they differed by 0.01 seconds. Liberty submitted a data request asking Qwest to explain the discrepancy. Qwest responded that Liberty's result was correct and that the discrepancy was due to human error. The data Qwest used in the calculation had been received by fax. Some numbers on the fax were difficult to read and had been recorded incorrectly. Qwest states that it now sends the information electronically, in order to prevent the problem from recurring.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure DA-1 to meet the audit-release requirements as of December 21, 2000.

b. Exceptions

There were no exceptions on this performance measure.

c. Observations

There were no observations on this performance measure.

d. Conclusions

This performance measure adequately approximates the average speed of answer of directory assistance services.

5. Recommendations

Liberty has no recommendation regarding this performance measure.

B. OS-1 – Speed of Answer – Operator Services

1. Introduction and Background

OS-1 is designed to measure the average speed of answer of calls to operator services. Operator Services are important to customers, and speed of answer is a key measure of service quality. Customers call operator services to complete local and intraLATA calls that are collect, person-to-person, or billed to third parties. They also call operator services to verify or interrupt busy lines. This performance measure has no product reporting. The only exclusion is for abandoned calls.

The standard for this performance measure is parity by design, and Qwest reports results on a combined retail/wholesale basis. Qwest has testified that its operator services function is nondiscriminatory, and that calls are answered on a first-come, first-served basis. For example, Qwest has stated that:

> *The design of U S WEST's operator services platform assures the nondiscriminatory treatment of CLECs. U S WEST's operator services platform has a single queue design, and calls enter the queue based on the order in which the calls reached the operator services platform. Because, technically, calls may only be answered from within a queue based on the order in which they enter the queue, it is not possible to discriminate between calls under this design.* (Testimony of Lori A. Simpson included in the Colorado SGAT)

The formula in the ROC 271 Working PID Version 2.0 for the OS-1 performance measure is:

> *Ó[(Date and time of call answer) – (Date and time of first ring)]/(Total calls answered by center)*

Qwest does not actually calculate results under the above formula. During interviews with Qwest personnel, Liberty learned that, every ten seconds, the Qwest's switches count the actual number of calls waiting in queue to be answered. Liberty will refer to these calls as "calls scanned." Qwest uses the data obtained from these counts to calculate the OS-1 performance results. This calculation multiplies the number of calls scanned (*i.e.*, the number of calls in queue at the end of each 10-second period when the count was taken) by ten seconds. Qwest then divides the result by the total number of calls handled during the period, a number that is also recorded by the switches. Mathematically, the formula that Qwest actually uses is:

> Average speed of answer = (Total calls in queue) x 10 ÷ (Total calls handled)

The application of this formula produces an estimate of the average speed of answer in seconds for operator services during the period. The accuracy of the estimate depends on the degree to which the number of calls scanned constitutes a good approximation of the average number of calls in queue during the period. Given that calls are scanned every 10 seconds throughout every day, the approximation is likely to be quite good.

2. Overall Summary

There have been no exceptions or observations issued regarding this performance measure. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews to learn about the performance result calculation process for OS-1. Liberty learned that the switches themselves, in addition to counting the number of calls in queue every 10 seconds, also record that data and the number of calls handled. A variety of documents report these source data. Of particular relevance here are the Daily Team Session Reports, which show both the actual number of calls handled and the number of calls that were counted in queue. They show these data either for each of the four six-hour periods in the day or for every 15-minute period in the day. The Office Session Reports provide calls-handled information for each 15-minute interval throughout the day.

Liberty requested the Team and Office Session reports for the month of July 2000. The reports are produced for two areas, East and West. Liberty compared some of the Office Session reports to their respective Team Session reports and verified that the totals were the same. Liberty then summed the daily data from the Team Session Reports for both areas, performed the division to obtain average speed of answer, and compared the results to those published by Qwest. The following table contains those results:

Comparison of Liberty and Qwest OS-1 results
July 2000

Area	Qwest Results	Liberty Results
East	8.66 seconds	8.655414 seconds
West	7.88	7.883593
Region	8.17	8.172747

After rounding to two decimal places, Liberty's results agree with Qwest's.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty released measure OS-1 on December 7, 2000.

b. Exceptions

There were no exceptions on this performance measure.

c. Observations

There were no observations on this performance measure.

d. Conclusions

This performance measure reasonably approximates the average speed of answer of operator services

5. Recommendations

Liberty has no recommendation regarding this performance measure.

IX. Network Performance

A. NI-1 – Trunk Blocking

1. Introduction and Background

NI-1 is designed to measure blockage of call completion from Qwest offices to CLEC offices by reporting busy hour blocking percentages in alternate and direct final trunk groups. Blocking rates are important measures of service quality, and blocked calls are highly visible to end-users.

This performance measure has no product reporting. Exclusions are for toll trunks, non-final trunks, trunks not connected to the public switched network, one-way trunks originating at CLEC end offices, Qwest official services trunks, local interoffice operator and directory service trunks, and local interoffice 911/E911 trunks.

This performance measure has two sub-measures. NI-1A reports blockage of local interconnection service (LIS) trunks connecting to Qwest tandem offices, and NI-1B reports blockage of LIS trunks connecting to Qwest end offices. The standard for both of these performance sub-measures is parity with Qwest's own results whenever CLEC blockage is greater than 1 percent, and the standard is 1 percent if CLEC blockage is less than or equal to 1 percent. The standard for NI-1A (the CLEC blockage) is termed NI-1C (the Qwest blockage), and the standard for NI-1B is termed NI-1D.

The formula in the ROC 271 Working PID Version 2.0 for the NI-1 performance measure is:

> *[Ó(Blockage in final trunk groups of specified type)(Number of circuits in trunk group)]/(Total number of final trunk circuits in all final trunk groups)*

Every 30 minutes, each Qwest end office and tandem switch sends traffic data to a Telecordia-produced system called DCOS. These data include usage, peg count (call attempts), and overflow (calls that could not be completed across that particular trunk group). Each week, the data are downloaded into the TIDE system, which in turn sends the data to the Trunk Servicing System (TSS). The Trunk Record Data Base (TRDB) is the time-share information management system, while TSS performs the various calculations required.

TSS analyzes trunk group data for a "study period," which is the four most recent available weeks of the last nine weeks of data. For each trunk group, TSS calculates the "busy hour" of the study period. (The busy hour is calculated in an industry-standard manner, and the results are used for many purposes within Qwest in addition to performance measure reporting.) Wholesale Regulatory Reporting (WRR) only uses information about Alternate Final (AF) and Direct Final (DF) trunk groups because these types of trunks have no alternate path. Thus, overflow from an AF or DF trunk group represents blockage. (Overflow from all other types of trunk groups may or may not ultimately represent blockage, because alternate paths exist for them.) The blockage that occurred during the busy hour is used to calculate each AF and DF trunk group's blockage percent.

WRR receives two reports each month. The report containing CLEC data includes all types of trunk groups, so the WRR program performs several additional types of exclusions (e.g., for non-

local trunk groups, one-way trunks from which Qwest cannot originate traffic) to arrive at only the required trunk groups for which a weighted blockage percent is then calculated.

The report containing Qwest data has already excluded many types of irrelevant trunks (e.g., non-local trunk groups), so the only exclusions that need to be made are for trunk groups in irrelevant states, trunk groups with no circuits in service, groups that are not AF or DF, etc. The weighted blockage percent is then calculated for this set of trunk groups.

In its monthly performance reports, Qwest reports the results of a study period. Qwest uses the four weeks that best conform to the month being reported on. For example, the September results recalculated by Liberty actually covered the period from September 4 to September 25.

2. Overall Summary

There have been no exceptions or observations issued regarding this performance measure. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews to learn about the performance result calculation process for NI-1. These interviews included a description of how busy hours are calculated by TSS, as well as a walk-through of the programs involved in actually calculating the performance results.

In all cases, WRR must separate trunk groups connected to a tandem switch from those connected to an end office. During its interviews, Liberty learned that Qwest does this by looking for the letter "T" at the end of the trunk group's "A" or "Z" location, because Qwest uses this letter to designate when the end of the trunk is connected to a tandem switch. Thus Qwest assumes that all otherwise-relevant trunk groups with an "A" or "Z" location ending in "T" are connected to a tandem switch. In a data request, Liberty suggested the possibility that the end of a LIS trunk group connected to a CLEC could have a location identifier ending in the letter "T" without meaning that the trunk group was connected to a Qwest tandem switch. Qwest responded that it had identified three trunk groups where this had indeed occurred, but that they were all for E911 service (which is excluded). Thus, while the problem has not resulted in any misreporting to date, the possibility still existed. Qwest has solved the problem by adding a new field to the reports received by WRR. This field tells WRR whether the "A" (or "Z") location is a CLEC, ILEC, IXC, etc., rather than Qwest. This solution was also discussed with Liberty in an interview.

Liberty requested the two files received by WRR and used by it to prepare its September NI-1 results. Liberty then used the data in those files to manually make the exclusions and do the calculations required to produce the performance measure results. The following tables contain those results:

Comparison of Liberty and Qwest NI-1A and NI-1C results
September 2000

	NI-1A - CLEC Blockage	NI-1C - Qwest Blockage
Qwest Results		
Numerator	7.87	0.08
Denominator	6504	14916
Percent	0.12%	0.00%
Liberty Results		
Numerator	7.872	0.0844
Denominator	6504	14916
Percent	0.12103%	0.00057%

After rounding the percentage results to two decimal places, Liberty's results agree with Qwest's.

Comparison of Liberty and Qwest NI-1B and NI-1D results
September 2000

	NI-1B - CLEC Blockage	NI-1D - Qwest Blockage
Qwest Results		
Numerator	8.93	5.15
Denominator	1896	19668
Percent	0.47%	0.03%
Liberty Results		
Numerator	8.928	5.148
Denominator	1896	19668
Percent	0.470886%	0.026174%

After rounding the percentage results to two decimal places, Liberty's results agree with Qwest's.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure NI-1 to meet the audit-release requirements as of December 8, 2000.

b. Exceptions

There were no exceptions on this performance measure.

c. Observations

There were no observations on this performance measure.

d. Conclusions

This performance measure accurately reports busy hour blocking percentages. Qwest has modified its procedures to address the potential tandem misreporting problem discussed above.

5. Recommendations

Liberty has no recommendation regarding this performance measure.

B. NP-1 – NXX Code Activation

1. Introduction and Background

NP-1 evaluates Qwest's timeliness in activating NXX codes. There have been several versions of the PID for this measure. The following is a description of this measure as it is defined in the PID that was approved by the ROC TAG on June 7, 2001.

When a CLEC needs a new NXX, the CLEC enters required information into the Routing Database System *(RDBS)*, which is a mechanized database. The Local Exchange Routing Guide *(LERG)* then populates the data. The Qwest Routing Group prints a report from the LERG that provides information about each new routing request. This information, which includes the NXX, the code owner, and the LERG due date, is input into a web-based Routing Tool. Qwest also requires that the CLEC provide a *Supplemental Information* form, which contains the local and toll routes to be assigned to the new NXX, and which also should include a test number. The Routing Group will not issue a routing request until it has the local and toll trunk information, but the group will issue one without a test number. The Load And Resource Group then inputs the new code data, as well as the required work orders for each relevant tandem and end office switch, into a program called "Protect." For each switch, an activation work order and a test work order are issued. Technicians normally work the two orders at the same time, and then close them both out in Protect.

NP-1A measures the percentage of NXX codes activated in the reporting period prior to the LERG effective date or the "revised" date, subject to exclusions. The "revised date" is a CLEC-

initiated renegotiation of the activation effective date that is no less than 25 days after Qwest receives complete and accurate routing information required for code activation. The formula for NP-1A is:

[(Number of NXX codes loaded and tested in the reporting period prior to the LERG effective date or the "revised" date)/(Number of NXX codes loaded and tested in the reporting period)] x 100

NP-1B measures the percentage of NXX codes activated in the reporting period that are delayed beyond the LERG date or "revised" date due to Qwest-caused interconnection facility delays, subject to exclusions. The formula for NP-1B is:

> *[(Number of NXX codes loaded and tested in the reporting period that were delayed past the LERG effective date or "revised" date affected by Qwest interconnection facility delays)/(Number of NXX codes loaded and tested in the reporting period, including NXX codes loaded and tested in the reporting period that were delayed past the LERG effective date or the "revised" date due to interconnection facility delays)] x 100*

The exclusions in the PID for both NP-1A and NP-1B are:

- NXX codes with LERG dates or "revised" dates resulting in loading intervals shorter than industry standard (currently 45 calendar days)
- NXX codes where Qwest received complete and accurate routing information required for code activations less than 25 days prior to the LERG due date or revised due date.

There is an additional exclusion for NP-1A:

- NXX code activations completed after the LERG date or "revised" date due to delays in the installation of Qwest provided interconnection facilities associated with activations.

The standard for NP-1A is parity while NP-1B is a diagnostic measure.

2. Overall Summary

There have been one observation and one exception issued regarding this measure. Qwest has satisfactorily responded to both of them.

The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews to learn how the results for this measure are calculated. Qwest accesses Code Opening Reports generated by the web-based system. For each NPA NXX, the Code Opening Report contains information showing if Qwest had received routing information and if the loading interval was shorter than 45 days. NPA NXXs for which no

routing information was received or with loading intervals shorter than 45 days are excluded from the NP-1 calculations at this point.

Qwest then identifies those NPA NXXs for which not all codes were activated by the *current due date*. The *current due date* in the Code Opening Reports is any new due date, whether it was changed at the request of the CLEC (in which case it is a "revised due date" as defined in the PID) or at the request of Qwest. Qwest must then determine if the missed due date was because of a facility problem or some other difficulty. To do this, Qwest refers to the RTAS – Translations Work Instructions Reports (TWINS Reports) that list all of the 2-6 codes associated with the new NPA NXX code. The TWINS report also contains the date that the Supplemental Information form was received, enabling Qwest to determine if that form was received on time or not. If not, the NPA NXX is excluded from the calculation. Qwest then accesses the Work Force Administration *(WFA)* system to determine if there was a facility problem associated with any of the 2-6 codes. To do this, Qwest looks at the Missed Function Codes and Jeopardy Codes in WFA for each 2-6 code. A code beginning with the letter "K" indicates a miss for Qwest facility reasons.

Qwest also identifies those NPA NXXs where all of the codes were activated by the current due date, but the current due date differs from the LERG Due Date. In those cases, Qwest must determine whether Qwest or the CLEC changed the date. (The CLEC might change the due date, for example, because it was unable to provide the Supplemental Information form on time). If the date was changed by the CLEC, then the NPA NXX was activated on time, because in this case the current due date is actually a "revised date" as defined in the PID. If Qwest changed the due date, Qwest must then determine if the change was made for facility reasons or not. Qwest accesses the TWINS documents, and then WFA, to determine the reason for the date change.

Liberty recalculated the NP-1 results for the month of April 2001. Liberty reviewed all of the Code Opening Reports for all 14 states, and then reviewed the TWINS reports for the relevant NPA NXXs. From these reports, Liberty was able to determine when the Supplemental Information form was received, and also see the 2-6 codes associated with the NPA NXX. Finally, Qwest provided Liberty with the relevant printouts from WFA that showed the Missed Function Codes and Jeopardy Codes. From this analysis, Liberty concluded that there were 46 relevant CLEC NPA NXX activations during April 2001 and that three of them were delayed. Liberty also concluded that one of the delays was due to a Qwest facilities problem, and the other two were due to other Qwest problems. This results in the CLEC NP-1A and NP-1B numerators and denominators shown in the June 25, 2001 Performance Report. Liberty did the same analysis for Qwest results, and concluded that there were 10 Qwest activations during April 2001, all of which were done on time. This results in the Qwest NP-1A numerator and denominator shown in the June 25, 2001 Performance Report.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure NP-1 to meet the audit-release requirements as of July 6, 2001.

b. Exceptions

Exception 1011 was issued at a time when the ROC 271 Working PID Version 1.4 was in effect. That document specified that NP-1 performance was to be measured against the LERG due date exclusively. However, Qwest was calculating NP-1 results using the current due date even at that time. Thus, the NP-1 results were sometimes using a due date that differed from the one that was required. Qwest proposed a revision to the PID for NP-1 that introduced the concept of a "revised due date," and the ROC TAG approved that change, bringing Qwest into compliance with the revised PID definition.

c. Observations

During an interview, Liberty learned that Qwest was requiring complete and accurate routing information at least 25 days before the NXX code's activation date, whether that date was the LERG effective date or a "revised" date. However, the PID in effect at that time only mentioned this requirement in connection with "revised" dates. Liberty also learned that Qwest was not requiring a test number before activating NXX codes and, in fact, Qwest was including in the NP-1 measurement those NXXs for which a test number was not provided by CLECs at all. This was inconsistent with the exclusion section of the then-current PID definition. Qwest proposed to eliminate the exclusion when test numbers are not received and to include additional language requiring complete and accurate routing information for both the original LERG due date and the Revised due date. The ROC TAG accepted these revisions to the PID, thus bringing Qwest into compliance with the revised PID definition.

d. Conclusions

This performance measure accurately reports the timeliness of Qwest's NXX code activations. Qwest has modified its procedures and documentation to address the two problems discussed above.

5. Recommendations

The process for calculating the NP-1 performance results is highly manual. Among other activities, it requires individually checking Missed Function Codes and Jeopardy Codes in the WFA system for hundreds of 2-6 code designators every month. Because of these manual activities, the process is susceptible to human error. It is Liberty's understanding that Qwest has begun the process of automating some of the NP-1 calculation steps, and Liberty recommends that this automation process continue to help minimize the possibility of human error.

X. CP – Collocation

A. CP-1 – Collocation Completion Interval and CP-2 – Collocation Completed within Scheduled Intervals

1. Introduction and Background

Performance measure CP-1 helps evaluate the timeliness of Qwest's installation of collocation arrangements for CLECs by reporting the average time to complete those arrangements. CP-2 reports the extent to which Qwest completes collocation arrangements for CLECs within the standard interval or within intervals established in specific interconnection agreements.

CP-1 has three parts. CP-1A reports the average time to complete collocation installations for which the scheduled interval from application date to ready-for-service is 90 calendar days or less. CP-1B reports on installations for which the scheduled interval is 91 to 120 calendar days; CP-1C reports on installations for which the scheduled interval is 121 to 150 calendar days.

CP-2 also has three parts. CP-2A reports the percentage of collocation installations completed within the standard or established interval in cases where the CLEC provided a forecast to Qwest 60 or more calendar days in advance of the collocation application date. CP-2B similarly reports on installations for which the CLEC did not provide a forecast to Qwest at least 60 days in advance. CP-2C reports on installations that required "major infrastructure modifications," which is specifically defined in the PID, and on installations with an interval longer than 120 calendar days.

Both CP-1 and CP-2 are reported on a CLEC-aggregate and individual CLEC basis. Both are also reported at the statewide level. CP-1 and CP-2 rely on the scheduled ready-for-service *(RFS)* date, which is defined in the PID's definition-of-terms section. If there is a CLEC-caused delay in the installation, the scheduled RFS date is extended. In the case of CP-1, such a delay could move the associated installation into a different reporting segment (*e.g.*, from CP-1A to CP-1B) or such that the installation would not be reported (*i.e.*, having a scheduled interval greater than 150 calendar days). For CP-2, changing the scheduled RFS date simply moves the target for determining whether Qwest met the required interval. Applications that are cancelled or have expired are excluded from these measures. In addition, for CP-2, installations that are missed for reasons beyond Qwest's control, but for which the RFS date was not rescheduled, are excluded from the measure's reporting.

The standards for comparing the results for CP-1 are 90 days for CP-1A and 120 days for CP-1B. CP-1C is a diagnostic measure. The standards for comparing the results for CP-2 are 90 percent for CP-2A and CP-2B. The standard for CP-2C had not been determined as of the date Liberty completed its audit of CP-2.

The formula for each of the sub-measures of CP-1 is simply the sum of the durations from application date to completion date divided by the number of collocations of that type (*e.g.*, CP-1A) completed during the monthly reporting interval. CP-2 is calculated by dividing the count of the collocations for which Qwest met the scheduled RFS date by the number completed in the monthly reporting interval.

2. Overall Summary

There have been several problems associated with reporting results for CP-1 and CP-2 accurately and consistent with the PID. The PID definition has changed several times in attempting to match the definitions with the process used to report results. In addition, Qwest had to modify the PID significantly as a result of changes to collocation rules issued by the FCC. These matters have now been resolved and the measures are ready for release.

3. Analysis

When Liberty started its audit there were six collocation measures as there were two measures associated with Qwest's provisioning of a price quote for a collocation installation. There are now just four measures, the two discussed in this part of the report, and CP-3/4, which report on feasibility studies.

Liberty first audited the results that Qwest reported for the month of June 2000, and issued one observation and four exception reports. Observation 1002 and Exception 1007 are addressed in the release report for CP-3 and CP-4.

Exception 1008 dealt with measure CP-5. In its response to the exception, Qwest confirmed that some calculation errors had been made. However, since the measure no longer exists, the issues addressed in the exception have no direct relevance.

Exception 1009 reported that the data used to calculate CP-1 and CP-2 were suspect. Qwest agreed that some dates were entered incorrectly, but disagreed that overall the data were suspect.

Exception 1010 reported that there were problems with the calculations used to report results for CP-1 and CP-2. Qwest confirmed that some errors had been made and indicated that an internal audit should prevent these kind of errors in the future.

Liberty then reviewed the collocation data and results for the month of September 2000. In a supplement to Exception 1010, Liberty reported that a large number of errors had been identified. In response, Qwest indicated that the December 2000 data and results were prepared for a re-audit.

Qwest then modified the PID to reflect the FCC's order on collocation, eliminated CP-5 and CP-6 (provisioning of a price quote), and reported that the first month's results that reflected the revised process was April 2001. Liberty reviewed the April data and reported that Qwest's records continued to show some questionable entries. In June 2001, Liberty reviewed the collocation files that contained completed installations for the month of April and May. On the basis of that review, Liberty concluded that Qwest's process for translating the compiled data into the monthly performance results report was satisfactory, that the supporting records were in fairly good order, but that several anomalies continued to exist. One collocation job had an error in the scheduled RFS date by over two months, the definition of RFS in the PID was not clear as to whether the final CLEC payment was required, cases in which all installation construction was complete except for power requirements had not been treated consistently, and the way CLEC-caused delays were treated was not exactly consistent with the PID. Liberty issued Exception 1044 to report on inconsistencies with the PID.

Qwest's actions resulting from the audit at this point were to issue PID changes and implement another process change for the collecting and recording of collocation records. The TAG approved the PID changes, which clarified how CLEC-caused delays were to be handled and the definition of ready-for-service. Liberty audited the collocation records for installations completed during the month of July 2001 for which Qwest's new process had been applied.

That audit showed that the records continued to be in fairly good order and that process changes, including the use of a better checklist, yielded more accurate results. However, Qwest had not corrected a problem in using the wrong date to begin the feasibility and ready-for-service intervals. Liberty issued Exception 1045, which noted that in some cases Qwest had used the application validation date rather than the receipt date to begin the intervals. Qwest went back through their records and determined the actual receipt date for CP-1 and CP-2 items for the months starting in April 2001. This caused the results for CP-1 to change slightly. The CP-2 results did not change because the revised start date did not happen to affect whether the RFS commitment had been met for those months. Liberty audited Qwest's records and determined that the company was using the correct date to start the RFS interval.

After Qwest changed the submit date on several collocation files in the COMET database, it refreshed its results table. Except for cases in CP-1 where the revised interval pushed the record to a new measure (e.g., *e.g.*, from CP-1A to CP-1B), the revised submit date should have only affected the numerators of the four collocation measures since the denominators, items completed in the reporting period, would not have changed. However, Liberty found that the denominators also changed. Liberty and Qwest examined every case in which this process caused a change from that reported in prior months. For example, seven new feasibility jobs appeared for the month of May 2001. For four of these of these jobs, Qwest personnel did not follow their procedures to have completed information posted within 48 hours. Thus when the monthly pull of data was made, these jobs did not appear. They would not have appeared in later reporting except for the refreshing of the database and results table that came about from Exception 1045. For the other three jobs, the orders had been on CLEC-hold for a significant period. When restarted, the submit date was changed rather than having the CLEC pay additional money for an order augment. However, the information in the results table did not get updated with the new start date until the refresh was done as a result of Exception 1045. In other cases, orders were cancelled and thus dropped out of the reporting or an item moved from CP-1A to CP-1B.

Liberty concluded that the current results reporting (i.e., results including up to through the month of July 2001) were accurate. However, Qwest needs to reinforce the importance of getting results into the database prior to the monthly pull and should self-audit that this has been done each month. Moreover, Qwest needs to determine and implement the best process for getting correct information into the results reporting. For example, if a collocation job was thought to be complete and reported as such, but later found that it was not completed until a later date, Qwest should update its results tables to reflect this more correct information. Collocation jobs that are cancelled by the CLEC after the feasibility study has been completed should not drop out of the reporting when Qwest updates its results tables.

4. Findings and Conclusions

a. Performance Measure Release Date

The release date for CP-1 and CP-2 is August 31, 2001.

b. Exceptions

Exceptions 1009, 1010, 1044, and 1045 pertained to CP-1 or CP-2. The first two of these reports dealt with data and calculation problems that have been cured by Qwest's improved process. The issues addressed in Exception 1044 have been resolved as a result of changes to the PID. Exception 1045 has been resolved on the basis of Qwest's change to using the actual application receipt date and Liberty's audit of those records.

c. Observations

There were no observation reports related to CP-1 and CP-2.

d. Conclusions

CP-1 and CP-2 accurately report on the times and commitments for completing collocation installations.

5. Recommendations

The many problems that were discovered during, and the long duration of, the audit of these measures relate to Qwest's personnel making mistakes in recording and determining dates associated with collocation installations and in not using the PID as the directive for reporting performance measure data. To a lesser degree, the lack of precision in the PID language caused some of the problems. While Liberty's most recent audit showed that Qwest was determining the data properly, the collocation measures should be considered candidates for a future review to ensure that the current level of accuracy is maintained. In addition, Qwest should continue to seek precision in the PID language so that it provides clear guidance and to prevent any future disputes. For example, the current PID for CP-1 indicates that the "RFS dates may be extended beyond the above intervals for CLEC reasons..." While the meaning could be inferred, this would be more correct to state that the "Scheduled RFS dates may be..."

Qwest needs to expand the scope of its own monthly auditing of collocation applications to ensure, among other things, that the monthly data pull acquired all relevant information and that the types of problems discovered during Liberty's audit do not reappear.

Qwest should implement a process whereby updated or corrected information in the COMET database is included in the reported results without eliminating items that have been cancelled or are otherwise valid items to report.

B. CP-3 – Collocation Feasibility Study Interval and CP-4 – Collocation Feasibility Study Commitments Met

1. Introduction and Background

Performance measure CP-3 helps evaluate the timeliness of Qwest's provisioning of collocation feasibility studies to CLECs by reporting the average interval to respond to collocation applications. CP-4 reports the extent to which Qwest completes collocation feasibility studies for CLECs within ten calendar days of the application date or within intervals established in specific interconnection agreements.

Neither CP-3 nor CP-4 have any sub-measures. Both CP-3 and CP-4 are reported on a CLEC-aggregate and individual CLEC basis. Both are also reported at the statewide level. If a CLEC causes a delay in issuance of the feasibility study, or requests that the study be provided by a date that is more than 10 days from the application date, the record is excluded from CP-3. The standards for comparing the results of CP-3 is ten calendar days, while that for CP-5 is 90 percent. The formula for CP-3 is the sum of the durations from application date to feasibility study issuance divided by the number of feasibility studies completed in the monthly reporting period. The formula for CP-4 is the number of feasibility studies completed within the scheduled interval divided by the number of feasibility studies completed in the monthly reporting period.

2. Overall Summary

There have been several problems associated with reporting results for CP-3 and CP-4 accurately and consistent with the PID. The PID definition has changed several times in attempting to match the definitions with the process used to report results. In addition, Qwest had to modify the PID significantly as a result of changes to collocation rules issued by the FCC. These matters have now been resolved and the measures are ready for release.

3. Analysis

Liberty first audited the results that Qwest reported for the month of June 2000, and issued one observation and four exception reports. Exceptions 1009 and 1010 are addressed in the release report for CP-1 and CP-2.

Observation 1002 reported that the dates Qwest used to calculate collocation measures CP-3 through CP-6 differed from the dates provided to CLECs. Qwest agreed that some dates were entered into their system incorrectly. (Note that CP-5 and CP-6 have been eliminated.)

Exception 1007 reported that CP-4 was not being determined accurately because of mix-ups in calendar days, business days, and 10 versus 21-day commitments. Qwest confirmed that human error caused some results to be reported inaccurately.

Exception 1008 dealt with measure CP-5. In its response to the exception, Qwest confirmed that some calculation errors had been made. However, since the measure no longer exists, the issues addressed in the exception have no direct relevance.

Liberty then reviewed the collocation data and results for the month of September 2000 and found that a large number of errors existed. In response, Qwest indicated that the December 2000 data and results were prepared for a re-audit.

Qwest then modified the HD to reflect the FCC's order on collocation, eliminated CP-5 and CP-6 (provisioning of a price quote), and reported that the first month's results that reflected the revised process was April 2001. Liberty reviewed the April data and reported that Qwest's records continued to show some questionable entries. In June 2001, Liberty reviewed the collocation files that contained completed installations for the month of April and May. On the basis of that review, Liberty concluded that Qwest's process for translating the compiled data into the monthly performance results report was satisfactory, that the supporting records were in fairly good order, but that several anomalies continued to exist. One feasibility study had the wrong completion date, several studies should have been designated as due within 10 days but were mistakenly scheduled for 12 or 14 days from the application date, several study intervals started after the application had been validated not on the date received, and the way CLEC-caused delays were treated was not exactly consistent with the PID. Liberty issued Exception 1044 to report on the inconsistency with the PID.

Qwest's actions resulting from the audit at this point were to issue PID changes and implement another process change for the collecting and recording of collocation records. The TAG approved the PID changes, which clarified how CLEC-caused delays were to be handled. Liberty audited the collocation records for installations completed during the month of July 2001 for which Qwest's new process had been applied.

That audit showed that the records continued to be in fairly good order and that process changes, including the use of a better checklist, yielded more accurate results. However, Qwest had not corrected a problem in using the wrong date to begin the feasibility and ready-for-service intervals. Liberty issued Exception 1045, which noted that in some cases Qwest had used the application validation date rather than the receipt date to begin the intervals. Qwest went back through their records and determined the actual receipt date for CP-3 and CP-4 items for the months starting in April 2001. This caused the results for CP-3 to change slightly. The CP-4 results changed considerably because the revised start affected whether the feasibility commitment had been met for those months. Liberty audited Qwest's records and determined that the company was using the correct date to start the feasibility interval.

After Qwest changed the submit date on several collocation files in the COMET database, it refreshed its results table. The revised submit date should have only affected the numerators of CP-3 and CP-4 since the denominators, items completed in the reporting period, would not have changed. However, Liberty found that the denominators also changed. Liberty and Qwest examined every case in which this process caused a change from that reported in prior months. For example, seven new feasibility jobs appeared for the month of May 2001. For four of these of these jobs, Qwest personnel did not follow their procedures to have completed information posted within 48 hours. Thus when the monthly pull of data was made, these jobs did not appear. They would not have appeared in later reporting except for the refreshing of the database and results table that came about from Exception 1045. For the other three jobs, the orders had been on CLEC-hold for a significant period. When restarted, the submit date was changed rather than having the CLEC pay additional money for an order augment. However, the information in the results table did not get updated with the new start date until the refresh was done as a result of Exception 1045. In other cases, orders were cancelled and thus dropped out of the reporting.

Liberty concluded that the current results reporting (i.e., results including up to through the month of July 2001) were accurate. However, Qwest needs to reinforce the importance of getting results into the database prior to the monthly pull and should self-audit that this has been done each month. Moreover, Qwest needs to determine and implement the best process for getting correct information into the results reporting. For example, if an application date is changed after a monthly report, Qwest should update its results tables to reflect this more correct information. Collocation jobs that are cancelled by the CLEC after the feasibility study has been completed should not drop out of the reporting when Qwest updates its results tables.

4. Findings and Conclusions

a. Performance Measure Release Date

The release date for CP-3 and CP-4 is August 31, 2001.

b. Exceptions

Exceptions 1007 and 1044 pertained to CP-3 or CP-4. The first of these reports dealt with data and calculation problems that have been cured by Qwest's improved process. The issues addressed in Exception 1044 have been resolved as a result of changes to the PID. Exception 1045 noted that Qwest had used the wrong start date on several applications. Qwest corrected this matter and Liberty audited the corrected results.

c. Observations

Observation 1002 indicated that dates used to calculate results may have been different than dates reported to CLECs. Qwest's process now cures that problem.

d. Conclusions

CP-3 and CP-4 accurately report on the times and commitments for completing collocation feasibility studies.

5. Recommendations

The many problems that were discovered during, and the long duration of, the audit of these measures relate to Qwest's personnel making mistakes in recording and determining dates associated with collocation feasibility studies and in not using the PID as the directive for reporting performance measure data. To a lesser degree, the lack of precision in the PID language caused some of the problems. While Liberty's most recent audit showed that Qwest was determining the data properly, the collocation measures should be considered candidates for a future review to ensure that the current level of accuracy is maintained.

The additional recommendations listed under CP-1 and CP-2 apply to these measures as well.

XI. Monitoring Program Recommendations

A. Scope of These Recommendations

Liberty's Statement of Work describes the monitoring recommendations that Liberty committed to providing at the completion of the Performance Measures Audit. These recommendations address all the elements that Liberty considers necessary for assuring that Qwest performance continues to meet requirements and for providing for corrective actions in the event that performance falls below this level. The recommendations contained herein address the following items:

- Providing a basis for routine, comprehensive, and quantitative reporting of performance by Qwest
- Creating a method for exception reporting, both quantitative and qualitative, by CLECs
- Establishing a means to identify promptly any changes in those processes, resources, and organizations that are material to results performance
- Creating a focused, recurring testing program that is integrated with the measures that are decided to be material to Qwest's Performance Assurance Plan, which will apply after the conclusion of the Section 271 process
- Providing a means for monitoring any exception areas that proved troublesome to resolve during the audit or are deemed to be both material and to have a particularly high likelihood of producing problems, given the experience during the audit
- Assuring a forum for recurring Qwest/CLEC/public service commission dialogue about performance measures.

Liberty has prepared these recommendations on the basis of the experience gained during the audit, discussions with the Test Administrator, and ongoing dialogue with the ROC, Qwest, and CLEC representatives. Liberty has also specifically considered the data-accuracy testing provisions of the New York Performance Assurance Plan, which it considers to be the most developed model available. During the course of the audit, Liberty assessed Qwest's program for managing changes to the performance measures and to the PID. The next section discusses the results of Liberty's review of Qwest's change management and how it should be factored in to on-going monitoring. The following section of this report discusses the basic data-testing elements of the New York Plan.

B. Change Management

Part of Liberty's audit included a review of the adequacy of Qwest's change management as it related to performance measures and to determine whether any aspects of Qwest's change management should be included in the recommendations for ongoing monitoring of the performance measures. This review consisted of three parts. First, early in the audit, Liberty reviewed Qwest's change management system for the computer systems that served as data sources to the performance measures. In particular, Liberty focused on the PANS system as it is

used as the primary data collection tool from which the regulatory reporting group draws the base data used to calculate performance measures. This review considered qualities such as sponsorship, accountability, audit trail, evaluation and approval of changes, and monitoring the progress of changes as they are developed and signed off on completion. Liberty did not identify any problems or issues in this area.

The second part of Liberty's review was a qualitative assessment of the manner in which Qwest responded to issues associated with performance measures and made changes to the PID. These processes were well tested during the course of the audit as many issues were identified in observation and exception reports, requests for information, and in interviews with Qwest personnel. Liberty concluded that Qwest performed well in this area. Issues associated with performance measures were resolved and the many changes to the PID were clearly identified and brought to the TAG for agreement.

The third part of Liberty's review was a specific examination of the procedures used by the regulatory reporting group to track problems and make changes to the programming and processes used to report performance. Liberty found that the process used by Qwest in this regard works well. Qwest uses an "issue" system in which problems, potential enhancements, or other changes are written up as specifically identified issues. Regulatory changes, suggestions or problems from Qwest's performance measure "owner," or issues identified by Qwest's regulatory reporting analysis team trigger the submission of an issue into a web-based system using standardized forms. An initial investigation of the issue determines whether a change to the RRS system is required. If so, a change request form is completed, a priority level is assigned, an estimate of the level of effort required to implement the change is made, and management approval is obtained. In cases where an update to the RRS code is required, Qwest develops the programming, tests the changes and validates results, and has a process for updating business and technical documents, and formally closing the change request and the issue.

Liberty found that Qwest's issue tracking system was well tested and worked well during the course of the audit. Because of the large number of issues identified both by the audits of performance measures and by Qwest internally, there were times when the updating of the documentation was delayed or incomplete. Liberty attributes this more to the number of issues that were in process rather than to a specific weakness in Qwest's change management. Also, while Qwest has the necessary internal documents to describe to regulatory reporting personnel how the issue and change management system worked, that documentation could be improved. For example, while Liberty was satisfied that regulatory reporting management was reviewing and signing off on the completion of changes, the level of management approval that was required was not specifically identified.

Liberty concluded that, other than some formalizing of the documentation for the RRS change processes, Qwest's RRS change management system was adequate. As to on-going monitoring, Liberty recommends that the RRS issue log be reviewed as part of the routine maintenance activities and meetings held every other month, which are discussed below.

C. New York's Plan

The New York Performance Assurance Plan provides for annual review, updates, and audits of the plan. The New York treatment of performance data accuracy is probably the most explicit to

date. Section K.1. of the New York Plan provides for an annual review of the PAP (includes Commission Staff and Verizon-NY) to consider modifying:

1. Measures and weights
2. Distribution of dollars at risk
3. Geographic deaveraging
4. Clustering and CLEC behavior exceptions
5. Small sample size procedures
6. Bill credit calculation methods.

The New York PAP requires that this annual review process be preceded by an audit of selected portions of the plan. The purpose of the audit is to determine whether Verizon-NY is properly "recording and reporting CLEC and BA-NY service quality data." The plan also contemplates a continuation (for six months after Plan adoption) of a Metrics Replication project, which is intended to assure that the monthly data being reported accurately reflects the quality of service that Verizon-NY is delivering to CLECs. Depending on what results accrue for the first six months, that project may continue as necessary, until Verizon-NY meets the applicable requirements for quality reporting.

The principal data-accuracy testing elements of the New York plan are:

1. Annual Staff audits of selected plan portions
2. Six-month continuation of the Metrics Replication project
3. Further extension of the Metrics Replication project, if and as necessary
4. Independent outside audits of data or scores in particular areas, upon CLEC challenge (payment for these audits is by the requesting CLEC, unless its claim or challenge is substantiated by the audit).

D. The Multi-State Aspects of This Audit

The New York plan was adopted by a single state and it contemplates a bilateral monitoring relationship between an ILEC and an individual state commission. A principal difference here is that the PMA/OSS testing and the development of a PEPP have occurred in a multi-state context. An important aspect to address here is the degree to which Qwest's need to interact with CLECs and commissions in as many as 14 states (or at least the 13 participating in the PMA/OSS testing process) will complicate efforts to develop a thorough yet non-duplicative monitoring process. Like Verizon-NY, Qwest will presumably remain answerable to each commission individually after the 271 processes are completed. Liberty presumes that each state will wish to exercise individual control over performance issues relevant to that state.

Thus, it is important to assure that any monitoring program not deprive a commission of the ability to examine those aspects of performance of special concern to it. It would not be correct to assume that performance levels will be or remain the same across all the Qwest states, or that each measure will be of equal importance to assuring effective competition in each state.

At the same time, there is likely to be enough commonality among the states to warrant at least partial overlap in data-accuracy testing activities. Otherwise, Qwest is likely to face extreme cost and resource burdens as a result of the duplication that will be inevitable, should there be a need to participate in and respond to as many as 14 different ongoing testing programs.

Accordingly, Liberty has prepared these recommendations to assure that each state can adequately give attention to its particular needs and circumstances, while avoiding unnecessary duplication of testing efforts that can be designed and implemented on a common basis.

E. Recommended Monitoring Program

1. Key Monitoring Program Elements

Liberty recommends a program that consists of three primary elements:

a. Providing for an orderly and visible process for making changes in the systems, processes, methods, and activities by which Qwest measures performance under established performance measures

b. Providing for planned and as-needed testing of material aspects of the systems, processes, methods, and activities by which Qwest measures performance under established performance measures

c. Performing abbreviated, routine monthly maintenance activities.

Controlling Changes

The first path, controlling changes, begins from the premise that measurement systems, processes, methods, and activities that have been subjected to the PMA and that have been adjusted to conform to the observations and exceptions of that audit form a proper baseline for assuring that Qwest measurements are reliable. It also recognizes that one should expect more efficient means for providing measures to arise as experience is gained in serving CLECs and in measuring the quality of that service. If that measurement baseline remains the same, except as changed in an orderly and controlled fashion, then overall confidence in measurement reliability can continue. Providing an approved method for Qwest to make changes, assuring that the change process is visible to the outside world, and identifying the kinds of changes that should undergo outside testing as they become established lay the foundations for establishing continuing confidence in how Qwest takes measurements of its performance.

Independent Testing

This element is designed to provide a more detailed examination of the continuing quality of Qwest's measurement of performance. While the first element depends primarily on Qwest's implementation of changes, this element will rely primarily upon activities undertaken outside Qwest's direct control, but nevertheless generally at its cost.

Two Year Planning Cycle: The first component of independent testing is the adoption of a formal plan that identifies the specific aspects of performance measurement that should be tested, what specific tests should be conducted, and who should conduct them. Such a program depends

largely upon the identification of the cycle on which such aspects should be tested. The cycle should be set on the basis of what are the highest areas of risk, particularly in terms of a combination of the probability of particular accuracy failures and the consequences of such failures. A two-year cycle, with annual plans for each year will provide a sound means for combining base testing with follow-up tests as appropriate. Not every element will be tested in every year; however, the annual plans should reflect the cycles that are determined to be appropriate on the basis of the risk analysis.

CLEC Requested Tests: Liberty believes that the two-year plan should reflect priorities and decisions by Commissions, albeit after input from CLECs. However, CLECs should have an option to identify tests of particular concern to them, whether as a result of (a) differences of opinion about risks and test activity definition, (b) particular needs that may be unique to them, or (c) other self-defined reasons. If cost responsibility for such tests are a function of test results and if there are reasonable limits placed upon the intrusion that testing activities can cause, there is sound reason to allow CLECs individually to compel particular testing of importance to them.

18-Month Interim Testing: The PMA has identified a number of areas where Qwest still has work to do to shake down or complete the development of measurement processes. Moreover, OSS testing may identify more, performance assurance plans may make large financial consequences hinge on a limited subset of measures, or CLECs may demonstrate that certain performance measures are especially crucial to market opening in the short run. Liberty believes that it will be very helpful to identify in advance any testing that should be done to address such issues. At present, Liberty believes that such special testing can be merged into the regular two-year cycle planning (*i.e.*, this element can be expected to disappear as a separate one after 18 months, absent extraordinary circumstances). Liberty also believes that the scope and extent of this 18-month program should also be a factor in establishing the planned test activities of the first 2-year cycle as well, in order to assure that activities during the first 18 months are adequate to address "start-up" concerns without becoming too burdensome (when combined with the planned activities of the first 2-year cycle).

Routine "Maintenance" Activities

These activities, while low in resource requirements, are important as basic indicators of the continuing performance of effective and complete performance measurement. Examinations of monthly report results will give an indication that key systems, processes, methods, and activities are continuously functioning at the level of detail required. Simple trend analysis may identify not only substantive performance concerns, but also highlight the need for inquiry into how the measurements are being taken. One-day meetings every one or two months (perhaps becoming less frequently over time) with the Qwest organization(s) that receive and then use primary information to produce measurement reports will give an early view of upcoming changes and will allow for dialogue about internal Qwest efforts to assure that measurement quality is being routinely observed and maintained. Such activities may not be likely to produce specific outside observations about any deficiencies that may arise, but they will promote a dialogue that will provide external reminders to Qwest about the need for continued vigilance and they will surely broaden the perspective that should be applied when more formal outside testing activities are being planned and designed.

2. Key Components of the Three Program Elements

The key components that comprise the three elements are set forth below:

Controlling Changes

1. Determine for each state what aspects of Qwest's measurement processes, methods, and activities shall be deemed to be "controlled"
2. Establish an agreed to method applicable to Qwest internal changes to controlled processes, methods, and activities
3. Establish a formal reporting process for Qwest notifications of internal changes
4. Establish "automatic" triggers for outside review of such changes.

Independent Testing

1. Establish annual, risk-based test program
2. Provide for CLEC-requested reviews
3. Establish an 18-month program for examination of known areas of change or repeat problems with significant potential for recurrence.

Routine "Maintenance"

1. Establish a process for a "sanity check" of the monthly results
2. Conduct meetings every two months (over one-year period) with Qwest Wholesale Regulatory Reporting.

3. Discussion of Monitoring Program Elements

1. *Determining Controlled Aspects Of Measurement Processes, Methods, And Activities*

The PMA has produced an understanding of the current means by which Qwest takes and reports measurements. The first step in developing a monitoring system is to determine those aspects for which there should be assurances that Qwest will either continue to assure performance by recognized and accepted means, or will change those means through a properly structured process. There should be developed a common understanding of what aspects of measuring and reporting performance require structured processes before change may occur. The key steps in implementing this recommendation are:

a. Qwest, CLECs, and Commission staffs propose those categories of measurement processes, methods, and activities that should be controlled. For example:

- The source or point within the source of initial data collection
- Types of records that are excluded from the measurement process
- Formulae or methods used to calculate intervals, totals, etc.

b. Provide for ROC/state resolution of differences

c. Use PMA report, supplemented as necessary by added Qwest descriptions to define current scope and state of controlled processes, methods, and activities

d. Produce final descriptions.

2. Methods for Making Qwest Internal Changes

While there should be an appropriate degree of outside control over changes, Qwest needs to continue to have the power and opportunity to investigate the need for and to make enhancements to measurement and reporting activities. Qwest's own identification of problem areas, cases where efficiency can be gained without sacrificing accuracy, and continuing responsiveness of the measures themselves to changing circumstances will be enhanced by continuing to emphasize Qwest's "ownership" of systems, processes, and activities.

Qwest should be free to make changes unilaterally outside of the areas "controlled" and it should be free to proceed, subject to oversight in controlled areas. However, it would be appropriate to require Qwest to demonstrate that it has an adequate internal review and approval process applicable to any changes that it proposes to make. Qwest should be required to commit to the use of such a process in making any changes to its systems, processes, or activities. Just as Qwest has the power to initiate change, so should it accept the responsibility to commit to a process of continual improvement in taking measures. The key steps in implementing this recommendation are:

a. Qwest provides a recommended process for itself to use in making changes in controlled processes, methods, and activities

b. CLECs and Commission staffs review and comment

c. Decide upon final process

d. Determine what descriptions of any changes Qwest must provide

e. Provide a forum for discussion of any concerns about the changes made.

3. Formal Reporting Process For Qwest Notifications Of Internal Changes

While Qwest can and should initiate changes, effective monitoring of controlled areas requires assurances that regulators know and understand the nature of changes in a way that will allow them to determine what level of review, if any, to undertake. Qwest should be obligated to report the purpose and nature of any changes to controlled areas on a timely basis. The key steps in implementing this recommendation are:

a. Qwest proposes a method and frequency for reporting changes to controlled areas (*e.g.*, a supplement to the monthly reporting of results)

b. CLECs and commission staffs review and comment on Qwest's proposed method and frequency of reporting changes

c. Decide upon a final method and frequency.

4. Automatic Triggers For Testing Of Changes

The principal goal of reporting is to allow regulators to design annual monitoring plans (see below). However, there are certain kinds of developments that may cause significant changes in the established measurement of reporting baselines. There should be an early effort to identify what kinds of changes regulators consider to fall into this category, in order to assure that the process for implementing such changes includes early, if not prior, review. The key steps in implementing this recommendation are:

a. Determine after consultation with Qwest, CLECs, and Commission Staffs what types of changes (*e.g.*, creation of an entirely new PM, change from an essentially all manual to automated measurement process) should produce immediate testing for accuracy and completeness

b. Determine what types of pre-identified testing should apply to each type (*e.g.*, data tracking, recalculation, process review, full audit)

c. Pre-qualify resources to promptly perform test work

d. Design and conduct test work within pre-set time period.

5. Establish Annual, Risk-Based Test Program

There need to be selected tests of the material aspects of Qwest's measurement and reporting processes. Liberty believes that they can best be developed through a process that solicits input from all stakeholders, but leaves the decision about test design, content, and resources to the individual commissions. Common consideration of annual test program needs, however, will assist in assuring the leveraging of resources and the elimination of duplication. The test program should consider, specifically and based on prior experience and known changes, those areas of greatest risk of inaccuracy and materiality to performance incentives, and it should be developed with consideration of the need for testing all material areas over a time cycle appropriate to their risk and materiality.

The development of this test program should take account of all other activities that have monitoring significance (*e.g.*, the above-recommended 18-month program for specific areas) in order to avoid duplication and to take advantage of other, outside activities that are informative. The key steps in implementing this recommendation are:

a. Solicit annually from CLECs and Commission Staffs a list of target test areas and test procedures

b. Conduct every two years an assessment of risks by performance measure, considering likelihood of error amount at risk and other factors to use in determining areas to be tested and testing frequency

c. In consideration of information from the previous two items, prepare annually a two-year plan specifying baseline test activities for each of the two years

d. Secure approval of plan from Commissions

e. Secure test resources (*e.g.*, on-loan Commission and contract personnel) and perform planned test activities

f. Report test results to Qwest, CLECs, and Commissions

g. Consider first-year results in deciding whether to adjust second-year test activities.

6. Provide For CLEC-Requested Reviews

Liberty anticipates that CLECs will have input to the development of annual test programs, and that commission control over selection of testing resources will provide CLECs with assurance that monitoring will be sufficiently independent. However, as final decisions about testing design, content, and resources will rest with the commissions, CLECs may find that their individual needs or concerns get less testing attention than they feel is deserved. A strength of the New York program is its allowance for CLEC-requested tests. Requiring CLECs to absorb their costs in the event that no material concerns are found will serve to limit the number of such requests, provided that the commissions retain control over the selection of the resources used to perform the requested testing. The key steps in implementing this recommendation are:

a. Provide a mechanism for CLECs to request special test activities

b. Pre-qualify resources to perform the test work

c. Establish detailed criteria for determining how to determine who is responsible for payment of testing costs

d. Determine whether there should be limits on the nature and extent of requested testing (*e.g.*, non-duplication of tests from regular two-year program, maximum number of CLEC requests per year)

e. Perform requested tests and report results to Qwest, CLECs, and Commission staffs.

7. 18-Month Program For Examination Of Selected Areas

The PMA has discovered certain problems that Qwest has had significant difficulty in addressing. Moreover, the PMA has identified some areas of material change or development that Qwest expects to happen over the next year or so. The key steps in implementing this recommendation are:

a. Determine areas of high risk on the basis of PMA results and OSS testing and CLEC and Commission Staff feedback

b. Identify the areas already scheduled for substantial revision from what was examined in the PMA

c. Create an audit plan for review of all such areas within 18 months

d. Determine whether progress in areas of high-risk and already scheduled changes justifies close-out of this special testing program within the expected 18 months.

8. Establish a process for a "sanity check" of the monthly results.

The PMA demonstrated that some problems associated with the reporting of performance could be detected through rather simple checks of the reported monthly results. These checks involved tests such as determining whether all measures were reported, whether prior results were consistent with previous reported results, and comparing state and regional level results. These matters should be detected and corrected before Qwest publishes the results. However, until Qwest demonstrates that the performance reporting process and control of that process are sufficiently mature, Liberty recommends that, in addition to whatever reviews state commission staffs perform, a consistent and routine check of results be performed and that the results of those checks be fed back to Qwest and the commission staffs. (See next item below on recommendation for regular meetings.) The key steps in implementing this recommendation are:

a. Agree upon a regular process for review of the monthly results that is independent of Qwest

b. Re-visit the need to continue this process at 6-moth intervals.

9. Interim Meetings With Qwest Wholesale Regulatory Reporting

The period over which the PMA has been conducted has been one of significant change and "fluidity" in the measurement and reporting processes, and, in fact, in the PIDs themselves. Both PMA work and focused attention on CLEC-related operations as the OSS testing takes place have highlighted areas where changed emphasis or measurement details are necessary. In a few cases, the need for entirely new performance measures has been observed. Moreover, the completion of the work necessary to release individual measures for testing led to an increased focus on the controls-related issues discussed above. Liberty believes that there is value in brief, regular discussion sessions between the auditor and Qwest's Wholesale Regulatory Reporting group for the next 12 months. Liberty recommends one-day sessions at one or two month intervals. These meetings would produce brief reports for Qwest and commission staffs. The reports will summarize the status of changes being made or considered, progress in addressing known concerns, and areas of potential concern. Their purpose is not so much evaluative as informative. They will apprise commissions of Qwest's activities on a fairly current basis and they will provide a before-the-fact feedback mechanism for Qwest's use in designing and possible altering its activities. The key steps in implementing this recommendation are:

a. Solicit Qwest, CLEC, and Commission Staff input on agenda items

b. Conduct meetings between Qwest Regulatory Reporting and designated representatives of Commission Staffs

c. Provide general monthly summaries of meetings to Qwest, CLECs, and Commissions.